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An Address
ON
THE IMPORTANCE OF EARLY FUNCTIONAL TREATMENT IN CASES OF CONTUSIONS AND SPRAINS OF THE BACK.

Delivered before the International Congress on Industrial Accidents at Düsseldorf on August 7th, 1912,

BY FRANK SHUFFLEBOTHAM, M.A., M.D., B.C. CANTAB., J.P.,

MEDICAL REFEREE UNDER THE WORKMEN'S COMPENSATION ACT FOR THE NORTH STAFFORDSHIRE DISTRICT.

GENTLEMEN,—The subject of early functional treatment in cases of accidents has only been considered seriously by the medical profession as a whole during the last ten years, and it is mainly due to the influence of Professor Lucas-Championnière that it now occupies such an important place in the treatment of fractures, dislocations, and sprains. This distinguished surgeon was the first to advocate that the old principle of treatment of fractures, by reduction of the fracture with absolute fixation of the parts to secure healing of the bone, should be abandoned. His observations on this subject date back to 1866, and he was early convinced that fixation did not lead to the best results, while, on the other hand, methodical movements were followed by quicker union of the bone and speedier restoration of the functions of the injured part.

It is now generally admitted that the method of treatment by fixation not only delayed bony union but often resulted in stiff and painful joints. Undue atrophy of the muscles took place, and frequently the injured part was never completely restored to its former condition of functional usefulness. A broken arm or a broken leg to a working man often meant many months of total incapacity for work, and perhaps a fracture near the knee-joint or ankle-joint would incapacitate him permanently. In the same way, a dislocated shoulder or a sprained ankle might cause equal unfitness for work.

TREATMENT BY MASSAGE AND MOVEMENTS.

The modern treatment by the application of massage and movements has more than justified its inception, and apart from the brilliant results of Lucas-Championnière many surgeons in England, notably Wharton Hood and Robert Jones, have met with equal success over a period of many years; and the success is due to the fact that this method takes into consideration, not only the pathological condition of the injured part, but also the physiological requirements of this part in a state of normal health.

Rubbing and movements appear to have been recognised as effective treatment for stiffness and pain from the remotest times, and Whitelocke says that the practice originated in the East. It is only, however, within recent years that the physiology of rubbing or massage has been scientifically considered. It is now common knowledge that massage improves the circulation of the part by causing dilatation of the blood-vessels, with consequent increased supply of oxygen to the tissues and a speedier elimination of waste products by the veins. This increased blood-supply not only affects the part that is actually rubbed, but necessarily has some influence on the surrounding structures, and it continues for some time after the rubbing has been discontinued. Tone is given to the peripheral nerves and improved nutrition to the whole part. In cases of hæmorrhage, after the activity has ceased, gentle massage stimulates the absorption of the effusion of blood and the blood-clot, and in inflammatory conditions it accelerates repair by causing absorption of the products of inflammation and restoration of the parts to functional activity.

Massage and movements now take their proper place in the therapeutic treatment of injuries, and the success which has attended this method when applied to injuries to the limbs should lead us to extend it to contusions and sprains of the back. It is a matter of surprise that this has not been done on any large scale, but I venture to think—and even to assert—that injuries to this region of the body have been much neglected.

Apart from the writings of Herbert Page, the subject has received but little attention in medical literature, and it is not very difficult to find the reason for it. In hospitals injuries of all kinds are treated on the surgical side, and those conditions which afford scope for brilliant operative treatment are those which most strongly appeal to surgeons with a limited number of beds at their disposal. Then again, in many cases, beyond the history of an accident and a complaint of pain in the back, there may be nothing to indicate a serious condition which may keep the sufferer away from work for any lengthy period. I think I shall be able to show that many of these cases are of a serious nature, and should demand the same attention as cases of fractures and dislocations. A man who has worked hard all his life may find through overlifting himself or twisting his back that he is a victim to pain and suffering for months, perhaps years, and that he is quite unable to follow his employment during this time. The symptoms at the time of the accident may appear unimportant, but experience of this class of case proves that a lengthy period of genuine incapacity for work very frequently follows.

I append short notes of 40 cases, of whom 35 are miners who have come under my notice for the purposes of workmen's compensation, and I have selected these cases from a large number as being true cases of contusions or sprains of the back unaccompanied by injuries to the spine or spinal cord. I am afraid that the notes of these cases are rather monotonous reading, but they all emphasise the importance of early functional treatment. The most striking point about each case is the lengthened period of disablement. Only four cases out of the total number were treated as in-patients at a hospital, and these patients do not appear to have received massage.

The notes will show that the principal causes of disablement are pains and stiffness in the loin, atrophy and weakness of the muscles in this region, lameness, and neurasthenia. Tenderness in the back is also a frequent symptom.

NATURE OF INJURIES.

These conditions are best understood when one remembers the essential features of the anatomy of the lumbar region. The bony structures are the vertebral column in the centre, with the last rib on each side above and the crest of the ilium below. Between the last rib and the crest of the ilium is stretched the lumbar fascia, which blends externally with the transversalis abdominis muscle (of which it may be regarded as the posterior aponeurosis), and internally it is attached to the spinous processes of the lumbar and sacral vertebræ. There are three vertical or longitudinal layers of this fascia, producing two definite spaces, in the posterior of which is enclosed the erector spinæ and multifidus spinæ muscles, and in the anterior space a small muscle, the quadratus lumborum, is situated. The lumbar fascia is pierced by the last intercostal nerve and its accompanying artery just below the last rib, and immediately above the crest of the ilium by the iliohypogastric nerve and artery. The latissimus dorsi muscle practically covers the whole of the lumbar fascia as it arises in the lower part by an aponeurosis from the spinous processes of the lumbar and sacral vertebræ and the supraspinous ligaments. With regard to the anatomy of the spinal column in this region, I cannot do better than quote Treves, who says that there are "a vast number of separate articulations, each provided with cartilage, synovial membrane, and capsular ligaments."

Bearing these points in mind, it is easier to understand what takes place when a workman violently twists his back or sustains an injury through a blow or in the different ways described in the list of appended cases, although at the time of the accident it may be practically impossible to say what the actual lesion is on account of the absence of definite objective symptoms.

In a case of rupture of the latissimus dorsal muscle the patient will have difficulty in raising his arm or in placing it behind his back, and he will complain of tenderness over the injured part. If there be any considerable hæmorrhage caused by tearing of the small blood-vessels, probably the local symptoms noticeable will be swelling due to effusion, with fluctuation on palpation. The skin may be bruised and subcutaneous ecchymoses seen. Even if the muscle be well divided in the upper part of the lumbar region,

retraction will not be perceived on account of the thinness of the muscle and its aponeurotic character in this part.

When the erector spinæ muscle, which forms a large fleshy mass on each side of the loin, is damaged the hæmorrhage will be confined by the layers of the lumbar fascia in which the muscle is situated, and there may be no symptoms beyond tenderness at the seat of the injury and inability to stand straight or to walk, although in severe cases a depression in the muscle and a corresponding retraction might be felt when the effusion had become absorbed to a sufficient extent.

But an injury such as a sprain of the back is generally a more complicated process, and the result may be a lesion implicating muscles and vertebral nerves as well as the joints of the vertebral column. The sensory nerves may be damaged, the ligaments of the various joints of the spine may be torn or stretched, synovitis may be set up in addition to muscle fibres being ruptured, and all these conditions may, and probably will, give rise to *localised pain*, which is invariably the most prominent symptom at the time of the accident.

DIAGNOSIS.

In most cases the pain is very severe and is intensified by the slightest movement. The back, therefore, is held stiff, and the patient will avoid moving the body and the legs. Walking and even standing are frequently impossible, and when the patient is able to stand he may suffer great pain, and the body may be bent so as to compensate for the loss of support of the injured loin and to minimise the pain as much as possible. Herbert Page has called attention to cases where the pain is so intense that the patient dreads even the slightest movement, and avoids even micturition and defæcation, so that we may have to deal with retention of urine or obstinate constipation as possible results. Sometimes unbearable pain may be due simply to the bruising of sensory nerves without any injury to deeper structures.

Bruising of the kidney may take place as a result of the same accident which causes the sprain of the back, and thus it is advisable to test the urine of each patient. In Case 15 hæmaturia was found for three months after the accident, and occasionally during the following year whenever there was too much exertion.

In a neglected case of sprained back, or one in which the treatment has not been scientifically applied, we find the same class of symptoms as I have mentioned as being the causes of disablement, and it is easier to diagnose the actual lesion at some little distance of time from the accident than when the injury actually was produced. Pain in the small of the back in such cases is most pronounced on movement, and it may be due to the stretching of adhesions which have been organised around the injured muscles or joints, or to the irritation of such nerves as the last intercostal or the iliohypogastric nerve through being implicated in the adhesions. There may be tenderness over these nerves as they emerge through the lumbar fascia, and when the iliohypogastric nerve is in a state of irritation the patient often complains of shooting pains over the buttock and lower part of the abdomen, as well as in the groin—over the area, in fact, which corresponds to the course of the nerve.

In the examination of the back, attention should first be paid to the condition of the lumbar muscles. Normally, they form a hard fleshy mass in the loin, firm to the touch, and easily responsive to the faradic current, but after an accident we often find on the injured side that the muscles are wasted and flabby, and less active to the faradic current. In mild cases of sprain, in which the bulk of the muscle may not be appreciably different on the two sides, the only test to show that some injury has been sustained is by the use of the faradic current. The injured muscles may present a hard fibrotic character in some cases, and where they have been divided to a considerable extent the surgeon can feel a distinct discontinuity in the muscle substance, with a retraction of muscle on each side; such a condition is most clearly shown in Case 5.

Great care is required in the examination of the joints of the vertebræ. If there be synovitis or the ligaments be torn or adhesions be formed there will be local pain and tenderness, and should there be no damage done to the muscles the diagnosis of joint trouble can be made on account of the immobility of that portion of the spine, especially in a lateral direction. For example, let us suppose that there be injury to the articulations in the region of the second and third lumbar vertebræ on the right side and adhesions have formed, then the lateral movements of the lumbar spine to the left side will be very much diminished or may be absent.

Stiffness of the back, therefore, may be caused by injury to the muscles or to the articulations of the different vertebræ, or to both of these conditions.

The general condition of the patient must be considered as well as his localised injury. Bright's disease, diabetes mellitus, muscular rheumatism, arthritis deformans, among other diseases, may be exaggerated in severity by a sprain or contusion of the back. Lumbago is a common sequela in rheumatic subjects, and I have seen locomotor ataxia set up a few months after an injury to the back in a subject who had suffered from syphilis.

Then again, the injury may be the prime factor in producing disease in a patient who had previously been a healthy man. Trauma is recognised as one of the principal exciting causes of the onset of diabetes mellitus. During the last 12 months I have had a case of this nature under my own notice (Case 34). Examination of the urine for sugar is important in any case of contusion or injury to the back, and should be made from time to time. The glycosuria may only be transitory, and may appear a few hours after the accident and have disappeared in the course of one or two days. When the sugar appears late it may be dangerous and rapidly fatal.

We thus see that, when we are faced with the possibility of hæmaturia or albuminuria or glycosuria, the examination of the urine in these cases of injury to the back should be a routine practice.

An active man who is engaged in laborious work may increase in weight and become unduly stout as a result of enforced inactivity after an accident to the back. In one of my cases (No. 21) the obesity was most pronounced, and the patient developed a fatty heart of a serious type. But of all conditions which follow either contusions or sprains of the back, neurasthenia is by far the most commonly found, and it was present in 15 out of the 40 cases of which I give the notes.

TREATMENT.

The treatment of a contused or sprained back must be directed, in the first place, to the control of hæmorrhage and the relief of pain, and shortly afterwards to the repair of the damaged tissues, whether they be muscle, nerve, or joint, so as to restore them as far as possible and as speedily as possible to the normal condition.

A preliminary stage of rest is essential, and the hæmorrhage may be checked or limited by firm pressure, either by strapping or by the fixing of a pad of gamgee-tissue, two or three layers thick, over the injured part by means of a domette or soft flannel bandage. But after a day or two *massage* must be started and *movements* begun as soon as possible. We must endeavour to secure the absorption of effusion, whether hæmorrhagic or inflammatory in nature, so as to prevent the formation of adhesions, and tone and increased vitality must be given to the muscles, so that wasting does not occur. If we are successful in these two respects recovery from the injury may be said to be accomplished.

Good results can only be brought about by early functional treatment. By the application of massage pain will be relieved, effusions absorbed, the blood-supply of the injured part improved, and the nutrition of the tissues increased; but to be effective this treatment must be carried out by people specially trained for the purpose and under medical supervision. Lucas-Championnière points out that the type of massage, the mode of pressure, the sensations of pressure and nervous stimulation, all play an important part, and obviously they can only be appreciated and properly applied by those who are highly trained and experienced.

Systematic exercises should be practised at an early stage, and are best carried out by those different forms of apparatus known as "developers," all of which are made on the same principle. Apart from the use of one of these appliances, simple exercises may be of the greatest value. I have found the following two exercises most beneficial in many cases. 1. The patient should stand with his legs straight and his heels firmly kept on the ground about ten inches from each other, and then should slowly bend his back 20 times in the following directions—(*a*) forwards, keeping the knees stiff;

(*b*) backwards; (*c*) laterally, first to one side and then to the other; and (*d*) should twist his back first to the right side and afterwards to the left. 2. The patient should lie on the floor perfectly straight and raise his body into a sitting position without using his arms and without lifting his legs from the ground. This exercise should be slowly repeated 20 times, and both exercises should be carried out two or three times each day.

Turkish baths may be taken with benefit in some cases, especially when there is a tendency to obesity, rheumatism or gout, and *radiant heat* at times has been proved to be of the greatest service.

In cases where muscular weakness has ensued *electrical treatment*, especially the use of slowly varying or rhythmic currents, may be employed, and if a case had been neglected in the early stages or be one that is not readily responsive to treatment, in addition to massage, exercises, baths, and electrical treatment, great benefit may be derived from *ionic medication*. This is a subject outside the scope of this address, but one cannot overlook the possibilities of this new departure in therapeutic practice, in dealing effectively with those cases of sprains of the back in which adhesions have formed or in which lumbago has been set up after the accident.

RESULTS OF TREATMENT.

Complete recovery in a large percentage of cases of contusions and sprains of the back in a comparatively short time will follow early functional treatment, which will prevent both the formation of adhesions and the atrophy of the muscles. Nerves in a state of irritation, as a result of being torn or bruised, may be successfully treated in this way, synovitis also; but equally important is the effect of early massage and exercises in the prevention of neurasthenia. In my private practice I have had many cases of sprains of the back during the last ten years, and I have invariably prescribed early massage, carried out by a trained operator and followed by methodical and systematic exercises. The majority of the cases were completely cured in three or four weeks on the average, and in two cases only did neurasthenic symptoms supervene.

Out of my 40 cases 15 developed neurasthenia of some degree, and 12 of these cases were miners, but this condition is probably more commonly found among coal-miners than any other class of the community, unless we except policemen. The two patients suffering from neurasthenia in my private practice which I have just mentioned were both mining engineers. I think that miners are predisposed to neurasthenia because they are occupied in a dangerous employment, and they appear to be in a chronic, though unconscious state, of apprehension of danger. Heredity, also, is an important factor in the causation of neurasthenia, and as mining is an employment which runs in families for generations we can see how the predisposition to this complaint is accentuated. The explanation of the prevention of neurasthenia is to be found in the rapid recovery of the patient from a physical point of view, and the hopeful mental attitude with which he regards his progress.

Age plays an important part in the prognosis of these cases, and it is essential to regard a case of sprain of the back in an elderly man as one to be treated most assiduously or the patient may be unable to work again. In all cases it should be remembered that a *recurrence of the sprain* is easily brought about, and any man who has once sprained his back is predisposed to this form of injury.

The notes of the 40 cases most emphatically show that early massage and movements were not carried out in even one case. It is perfectly true that, theoretically speaking, the treatment in every case was rest and rubbing, but I venture to think that there was too much rest and that the rubbing never constituted massage. It is impossible for a working man's wife to massage her husband with but the smallest beneficial results, and I am afraid that in most instances her efforts end in greasing his skin rather than massaging his back.

My own experience proves that it is useless to expect proper treatment to be carried out in a working man's home, and that neglect of early functional treatment leads to prolonged pain and suffering, to disablement over a long period of time, and in some cases to complete and permanent incapacity for work.

I feel that the subject of contusions and sprains of the back is all the more important on account of the great frequency of these injuries in every industrial centre.

Efficient treatment is not only necessary from a point of view of the injured man, but also on economic grounds, and the only satisfactory method, as far as I can see, will be the treatment of these cases in a hospital or institution. Serious cases, when the men can neither stand nor walk, are now admitted into the accident wards of hospitals, but I doubt if there is any satisfactory after-treatment, and the vast majority of cases are treated either as out-patients or at home with the pitiable results I have indicated. There are only a few hospitals in this country with out-patient departments for the treatment of cases by systematic massage, electricity, and ionic medication; but I hope that in the near future hospital committees will be assisted by employers of labour, insurance companies, and by the workmen themselves, to organise such institutions which will be of priceless value not only for the treatment of sprains of the back but also for fractures, dislocations, and injuries to the other parts of the human body.

NOTES OF CASES.

[Dr. Shufflebotham reinforced his position by giving notes of 40 cases in which partial or complete disablement ensued after contusions and sprains of the back, there being in about one-third of the number complete and permanent disablement for work. Owing to considerations of space the following cases only are reproduced:—]

CASE 1.—Collier working at the face; aged 39. Date of accident, March, 1904. Contusion of muscles of back through fall of roof in the mine. He was kept in bed at home for six weeks, and afterwards treated with liniments. I examined him in February, 1906, and found he had done no work since the accident. He complained of pain in the back, which prevented him from sleeping at night, and I found wasting of lumbar muscles on both sides, tenderness over this area, stiffness of back, limitation of movements in all directions, lameness, inability to walk without a stick. Loss of weight from time of accident, 36 lb. Neurasthenia with marked vasomotor irritability and muscular twitchings. He was totally incapacitated from work. No previous illness or accident.

CASE 2.—Dataler in coal mine; aged 56. Date of accident, September, 1904. Sprain of back, caused by attempting to put on the rails a loaded wagon which was derailed. There was immediate pain in the right loin, and the man stopped work at once. He was in bed at home for two weeks, and was treated by rubbing. He attended the hospital for 12 weeks as an out-patient, and was treated with the electric battery twice a week. I examined him in March, 1906, and found him to be suffering from pains and stiffness in the back, unable to undress or dress himself; tenderness in right lumbar region, muscular atrophy, no neurasthenia. Condition for work at this time, total incapacity. No previous illness or accident of a serious nature.

CASE 5.—Collier working at the face; aged 54. Date of injury, November, 1903. Injury to right side of back through fall of roof in the mine, the head being forced between the legs. He was treated at home and stayed in bed for three months. The treatment consisted of rest and liniments. Date of first examination, November, 1906. Symptoms at time of examination: He complained of pain in back and inability to stand or sit in one position for more than a minute at a time because of pain; he slept badly because he had pain if he lay in one position for long, and there were stiffness of back and limitation of movements in all directions. The lumbar muscles on the right side had evidently been divided and no attempt made to secure union. There was a large area of tenderness to the right side of the spine in the lumbar region, and he was lame, being unable to walk without a stick. At subsequent examinations, extending over a year, no improvement in the condition of back. Total and permanent incapacity for work.

CASE 10.—Collier working at the face; aged 43. Date of accident, June, 1909. Twisted his back in trying to save himself from being thrown off a trolley, and worked for five days after the accident. During this time he had a good deal of pain, which increased to such an extent that he had to give up work and go to bed. His doctor told him that the muscles and nerves of the back were strained. In October, 1909, he said he could not work because of pain in the back and inability to walk properly. He was able to dress and undress, but had pain on turning over in bed. Lameness; walked with a stick. The muscles in the lumbar region were flabby, and there was tenderness on both sides of the spine. The back was stiff, and he was in a nervous state. Total incapacity for work at this time.

CASE 21.—Colliery chargeman; aged 43. Date of injury, November, 1909. He was lifting a derailed wagon on to the lines when he felt "something crack" in his back. He had a severe pain, and he said that his back "burned like fire." He worked on and off for a month, but at the end of this time he was compelled to stop, and he consulted a doctor, who told him that he had "wrenched all the muscles of the back." In November, 1910, he complained of pains in the back, and said he sometimes had to go to bed in the daytime because of the pain. There was a good deal of stiffness in the back, but I could not find any tenderness. He became very stout after the accident through inactivity, and when I saw him he had a fatty heart, which of itself would be sufficient cause in this case, apart from the condition of the back, to incapacitate him from work in a mine.

CASE 24.—Bricklayer at a colliery; aged 33. Date of accident, April, 1910. He was lifting a piece of stone weighing 10 cwt. with three other men when he felt his back give way as if it were broken, and he fell down, catching his back against a heap of stones which was behind him. He did not go home straightaway, but rested for two hours. He was treated by his own doctor and as an out-patient at the hospital, where he had two electric baths. He tried light work without success. In December, 1910, he complained of pains, especially after sitting or walking, and said he could not sleep at night because of the pains

There was tenderness on both sides of the loins, and the movements were limited when bending forwards. He had some neurasthenic symptoms, and was not fit to work as a bricklayer. There had been no treatment for five months.

CASE 34.—Timberer in a coal mine; aged 53. Date of accident, January, 1911. He was lifting a wagon full of dirt, when he strained himself and fainted. On recovering he had pains in the back and abdomen, and has not been able to work since the accident. He was treated at home by his doctor for several months and was given liniments. In June, 1911, when I first saw him he complained of pains in the back, but his most prominent symptom was that of thirst, dryness of the tongue, and frequent passage of urine. He told me that he was drinking six or seven quarts of water each day in addition to tea and milk, and that he passed water about 20 times a day. He had lost 56 lb. in weight since the accident. On examination I found tenderness over the lumbar muscles on both sides, and the urine showed most marked glycosuria, with a specific gravity of 1036. Prior to the accident, he only drank three pints of liquids in the day while at work, and passed urine four or five times. He had never had any illness previous to the accident, and was a most regular worker. From June, 1911, onwards to May, 1912, he was under rigorous diabetic treatment, but while the disease had been arrested there was little progress. The specific gravity of the urine was 1034, with a most definite reaction for sugar. The weight had not altered during these 11 months.

CASE 38.—Pitshaftsman; aged 42. Date of accident, November, 1911. He was trying to lift up a steel pipe weighing 8 cwt. when he strained himself and felt a sudden pain in the back. He did not give up work at once, but finished his turn. He rested for the two next days and worked the day afterwards; then rested for another two days and worked another day, when he had to give up because the pain in the back became worse. He was in bed at home for three weeks and was treated with liniments, after which he had a course of Turkish and electric baths. He started light work in February, 1912, and worked irregularly for several weeks, but eventually was compelled to cease work on account of pain and weakness in the back. In June, 1912, he complained of pain in the left loin, especially on movement. On examination I found there was tenderness on the left side of the back in the mid-lumbar region, where the muscles were atrophied. The movements of the back were limited in all directions, and when he bent the back forwards there was pain. There was acute tenderness on pressure over the last intercostal nerve on the left side. He was only fit for light work on the surface.

EPITHELIAL GRAFTING AS A MEANS OF EFFECTING THE SURE AND RAPID HEALING OF THE CAVITY LEFT BY THE COMPLETE MASTOID OPERATION.*

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The argument.—Two conditions are essential to the success of operation for the cure of chronic otorrhœa: (1) all disease must be removed; (2) the large bone wound must be made to heal from the bottom. We may say at once and deliberately that, in the great majority of the cases, all the disease can be removed without injury to important structures. Greater difficulty has been experienced in fulfilling the second condition. Systematic tamponning, either through the unsutured mastoid wound, or through the enlarged meatus, has been employed for this purpose. All who have carried this out are aware how painful it is to many patients and how it wearies both the surgeon and the patient. Whiting,[1] in his work published in 1906, speaks of the severity of the pain inflicted by dragging out the gauze packing, and of the weary weeks of frequent dressings and irksome details which the intelligent care of mastoid cases requires. Politzer[2] says: "The duration of the after-treatment varies from six weeks up to nine months and over. The mean duration is between three and four months." Grunert[3] says: "In exceptional cases cicatrisation proceeds so smoothly that the entire cavity is healed in from four to six weeks; on an average cicatrisation is complete in three to four months. There are, however, specially unfavourable cases in which, either as a result of constitutional peculiarities or of particularly unfavourable local conditions, this period of time becomes considerably extended." Passow[4] in a thoughtful paper gives statistics from various clinics showing that the average duration of treatment by the tamponning method varied from four to ten weeks in the most favourable instance up to 36 weeks and over. Respecting the most favourable figures quoted he, however, says: "Though Hartmann in the most recent edition of his text-book, when referring to the radical operation, remarks laconically that the healing takes from four to ten weeks, this can really only be taken *cum grano salis.*" Most striking, however, are the figures which he gives respecting the cases operated on in his own clinic at Heidelberg. Of 44 recovered cases 18 were operated on by different methods, but all without Thiersch grafting. In these the average duration of the after-treatment was 20 weeks. The other 26 cases were operated on by a method described in the paper of which Thiersch grafting forms a part. In these the average duration of treatment was 11 weeks. One healed in three and a half weeks, but the majority took over three months to heal.

A visit which I paid some years ago to the otological clinics of Körner, Lucae, Trautmann, Jansen, Schwartze and Grunert, Barth, Politzer, and Bezold, in which I saw hundreds of cases in various stages of treatment by the tamponning method, gave me the impression that the above-quoted statements give rather too favourable a view of the results of that treatment. I should say that in many of the cases treatment was continued for six or seven months. I became, therefore, more than ever confirmed in the opinion that the method I described in 1900[5] presents great advantages over tamponning alone and over the methods of grafting practised before that date by myself and others.[6] In almost all my cases the bone wound becomes dry in from two to three weeks. When grafting is carried out at the close of the bone operation the tympano-antral cavities are epithelialised immediately, and at the end of ten days it often happens that the further treatment no longer calls for special skill. I never obtained such results without grafting; and I may add that I had a wide experience of mastoid surgery before anyone even proposed to shorten the healing process by grafting. In general surgery skin grafting is carried out in order to hasten the cicatrisation of a wound having a large superficial area, since a large wound to which living epithelial cells are applied heals more quickly than one which has to be entirely covered by ingrowth of epithelial cells from the edges. The wound left after the complete mastoid operation is not only of large superficial extent, but its floor is in great part raw bone, a tissue which heals much more slowly than does soft tissue, and is, moreover, much more susceptible of reinfection during the process of healing. The surface of the wound is not flat, but it is so shaped that granulations, if allowed to become exuberant, may cross the cavity and shut off spaces which remain unhealed and which so become a fertile cause of persistent discharge, and so of failure of the operation. When I visited his clinic Jansen, in doing the complete mastoid operation, applied immediately several small grafts, completely sutured the mastoid flap, and treated the case by tamponning through the enlarged meatus. He objected to grafting the tympanum on account of its numerous recesses, which he considered made the proper application of a graft impossible, and also because the graft might throw a veil over the two windows and so produce loss of hearing. This fear is not confirmed by experience. The sole object of the grafting operation is to expedite the healing of the wound. To contend that there is any great difference in the final result is an error, but the more rapid the healing the better for the patient in general and for the hearing in particular. The result of grafting by the method I now use has been, in my hands, so satisfactory in many hundreds of cases that I can strongly recommend it.

The advantages gained by grafting the mastoid cavity are:—

1. Rapid healing of the entire wound, bone, cartilage, and soft parts, on ordinary surgical principles.

2. Immediate protection of the raw bone surface by a layer of living epithelium, and, in consequence, elimination of the pain and discomfort otherwise incidental to treatment by tamponning and of the liability to reinfection of the bone.

3. Considerable shortening of the time during which specially skilled attendance is necessary. Two weeks after the grafting operation the bone granulations are all covered by visible living epithelium, and the rest of the attendance may safely be left to the family doctor.

4. Improvement in hearing. When the graft has been cut very thin and successfully applied healing takes place at once under the best conditions. The graft, except its inner layer of living cells, separates by aseptic molecular necrosis. The fenestræ become covered by the thinnest possible layer of tissue, and consequently the hearing is generally very

* A paper read before the International Otological Congress, Boston, August, 1912.

good, and is certainly much better than when granulation has long been present over the fenestræ.

The above advantages are almost invariably obtained when all bone disease has been removed and the raw bone surface has been covered with a single graft, cut sufficiently thin, and accurately applied. If these conditions have not been fulfilled the method described by me has not been carried out.

The hearing after the complete mastoid operation.—Patients naturally always wish to know whether they will hear better or worse after the operation than before, but this question cannot be answered with certainty. In the absence of disease of the labyrinth the condition of the parts around the fenestræ is the main factor influencing the final result as to hearing. Several observers (for example, Politzer, Heine, and Grunert) have given statistics on the subject which show that on an average the hearing is improved in rather less than half the cases, unaltered in about a third, and made worse in the remainder.

Several years ago I tested the hearing in a number of consecutive private cases. The examinations were made from one to seven years after operation. In every case operation had been done for long-standing otorrhœa with more or less bone disease. The ages of the patients ranged from 14 to 50 years. In all these cases my method of grafting was carried out. About 75 per cent. of these patients showed remarkably good hearing as the result of the operation. I propose at a future time to publish further details about them. In children the hearing after the complete mastoid operation combined with my method of grafting is usually very good. They may suffer no educational disadvantage, and their deafness may even pass unnoticed while they are at school.

Alternatives to grafting.—The only alternative to grafting I have so far mentioned is *tamponning*, but we have also the method of Baracz, the "*blood-clot dressing*," Beck's *bismuth vaseline paste method*, and the use of *scarlet red*.

In 1900 Baracz, of Lemberg,[7] published a method he had devised of covering the bone with a flap of skin taken from the neck. This plan has the disadvantage of leaving a scar in the neck, but it can be rapidly carried out and requires less delicate manipulation than does the grafting operation which I recommend. Such a flap as Baracz makes should never be placed over the inner wall of the tympanum, where the thinnest of Thiersch grafts alone are suitable. Those who apply thick slices of tissue over the fenestræ must not be surprised if the hearing of their patients is not improved. I have no personal experience of this method.

The "blood-clot dressing."—After the mastoid operation a cavity is left in the bone, the walls of which cannot be approximated; if the skin be sutured over this a "dead space" is left which fills with clot. Surgeons have always regarded such "dead spaces" with considerable distrust, and it was until quite recently generally taught that the presence of blood-clot in such spaces was harmful. Only a few years ago a drainage-tube was considered indispensable even for a clean wound made through healthy tissues, lest blood and serum should accumulate in the wound and prevent healing. In the fifth edition of the late Greig Smith's "Abdominal Surgery," published in 1896, the objection is raised to the method, now so generally in use, of suturing the abdominal wall in layers, that "such a suture leaves a series of gaps to be filled with clot, between each layer at the line of junction."[8]

Further observations showed that this fear of blood-clot in a wound was groundless. So far from exercising a deleterious influence it is an important factor in the process of healing, since the serum from fresh blood-clot possesses bactericidal powers, and the fibrin of the clot forms a delicate scaffolding upon which the new fibrous tissue is built up. In the time of our forefathers it was a common practice, often attended with the most happy results, to allow the wound in a case of compound fracture to become occluded with dried blood, but the reasons why many of these cases did well were not then appreciated. In 1886 Schede[9] published a paper on the Healing of Wounds under a Moist Blood-scab, in which he showed how important a part blood-clot plays in the obliteration of "dead spaces." In 1891 Halsted,[10] to whom we are indebted for many improvements in surgical practice, called attention to the subject and pointed out that not only should clean wounds be as a rule entirely closed, but that suppurating wounds might, with certain precautions, be similarly treated. Among the cases he mentions in support of his views are several instances of bony cavities. In commenting on these he says: "A bone cavity should never be stuffed. The granulations should be encouraged to grow as luxuriantly as possible. Whether the blood-clot melts away or not the bone cavity should be bridged over by skin or by protective gutta-percha tissue. The granulations must be most carefully protected from insult. They should rarely, if ever, be irrigated. In other words, a bone cavity which has lost its blood-clot should be treated as if it still possessed it." The method advocated in Halsted's paper for dealing with "dead spaces," which has been termed the "blood-clot dressing," is deliberately to allow the space to become filled with fresh blood, to close it over with skin, if skin be available, or if not to cover the opening with gutta-percha tissue, to place over all a protective dressing, and to let it alone. By this means it is claimed that rapid healing may be obtained in many cases which if treated by the open method would heal much more slowly and with greater deformity.

The success obtained in dealing with other bone cavities by this method has induced several surgeons to use it in mastoid cases; I have, indeed, myself applied it successfully in acute cases. If the "blood-clot dressing" is to be employed no antiseptic must be used, as it is essential to success to have a wound surface of uninjured living tissue.

When I was in Copenhagen last year I found that Professor Mygind adopted the "blood-clot dressing" as his ordinary method of treating cases of the complete mastoid operation. A week or ten days after the first operation he throws forward the pinna and curettes the cavity. He then allows the cavity to fill with fresh blood, sutures the flap in place, and applies a protective dressing. I do not consider, however, that the results of this method can be compared with the rapid healing obtained by epithelial grafting, and I may add that the results I have obtained from the "blood-clot dressing" in acute cases compare unfavourably with those obtained by the more common surgical methods. Moreover, after the complete mastoid operation the object in view is *not to fill the cavity with a mass of cicatricial tissue*, but to epithelialise the surface of the cavity as rapidly as possible.

Beck's bismuth paste and scarlet red.—I have found this method most useful in promoting the healing of cavities elsewhere in the body, and I have used it both as a substitute for, and as an adjunct to, grafting in mastoid cases. It outlines the cavity, sterilises its surface, checks exuberant granulations, and does not interfere with the growth of epithelium. It obviates the necessity for skilful tamponning. I make the injection once a week.

Scarlet red.—I have not observed any great advantage from the employment of scarlet red ointment† in the cavity left by the mastoid operation, possibly because my experience of its use in these circumstances is small. In complicated cases (extradural abscess, sinus thrombosis, &c.), in which the superficial wound is often large and is designedly left widely open, there is no doubt in my mind that the epithelialisation of the superficial wound and of the edges of the mastoid cavity is much hastened by the use of this ointment. Last month I used the scarlet red ointment with great success in the convalescence of two patients from extradural abscess and cerebellar abscess respectively. The scarlet red ointment should be applied every other day; on alternate days some other simple dressing.

Grafting in labyrinthine operations.—If I may look forward a little, I think that epithelial grafting will be found useful in hastening the healing of wounds which are now so commonly made in the petrous for the cure of suppurative or non-suppurative conditions. Recent operations for tinnitus and vertigo have been attended with a fair measure of success, and there is some hope that deafness due to obstruction of the fenestræ may some day yield to operation.

Many patients have complete tympanic deafness without any, or with but very slight, evidence of disease of the nervous apparatus of hearing. In these cases no sound-waves can penetrate the bony box of the internal ear through the normal channels, and it seems possible that aerial conduction might be restored by making an artificial opening in the capsule of the cochlea.

† Annals of Surgery, vol. ll., 1910.

The operation.—The complete mastoid operation is done, the posterior wall of the osseous meatus and the annulus tympanicus being especially well cut down so as to get a good view of the inner wall of the tympanum. The mucous membrane of the tympanum and antrum is not disturbed. The stapes is then carefully removed and the little wedge-shaped portion of bone between the fenestræ is cut away with a gouge of corresponding width; the stroke should be gentle and should be directed from above downwards and forwards. The greatest care should be taken that the cutting edge of the gouge does not cross the vestibule and impinge upon its inner wall; a little clear fluid escapes. The opening is immediately covered over by an epithelial graft just large enough to overlap its margins. No further escape of fluid occurs, and healing takes place rapidly and satisfactorily with the usual dressings. An opening so made leads into the vestibule and into both scalæ of the cochlea. Possibly it might be better to open the cochlea directly and avoid opening the vestibule. In a case I published many years ago [11] suppuration had extended into the semicircular canals, and in removing these the vestibule was widely opened; it was not the seat of suppuration, and clear fluid was seen to escape from it. A graft was placed over the opening into the vestibule. The result was remarkable; not only was the vertigo cured, but the hearing was restored. The patient was a woman, 54 years of age, who had had left otorrhœa since childhood. At the time of operation there was absolute deafness of the left ear, and the patient said she had been deaf in the left ear all her life. The graft over the vestibule was absorbed and replaced by a living membrane which could be identified by a probe passed through a speculum. I have always thought that sound waves, in this case, passed through the membrane which had formed over the aperture in the vestibule made at the operation, and not through the fenestræ. This is another route by which aerial conduction may possibly be restored.

During the last 15 years I have operated on the labyrinth for deafness in a few selected cases, but only in one with any success. I shall try again.

I should like to refer to Jansen's method of epithelial grafting in acute cases, but time does not permit.

History.—For some years before adopting epithelial grafting systematically I had from time to time applied grafts, either at the time of doing the bone operation or at varying periods afterwards, sometimes through the unclosed retro-auricular wound, sometimes through the meatus. I do not claim priority in the matter of the application of Thiersch grafting, a procedure well known in general surgery, to the mastoid operation. Several German and probably enough other surgeons had made use of epithelial grafts in mastoid operations considerably before my method was published; but I believe that I was the first to advocate the systematic adoption of epithelial grafting for the immediate healing of the bone wound, and that this should be combined with closure of the wound by suture. The account of this method was published in January, 1900.[12]

A description of Thiersch's method of transplanting large epithelial grafts is given in a paper published by Urban of Leipzig in 1883.[13] The first mention of Thiersch grafting as a part of the complete mastoid operation is, so far as I am aware, in a paper by Siebenmann published in 1893.[14] Siebenmann recommended the application of epithelial grafts (2 cm. by 5–7 cm.) two or three weeks after the bone operation.

Reinhard, of Duisburg, in 1894 [15] endorsed Siebenmann's recommendation, and in 1898 [16] wrote more fully on the subject. He had tried immediate grafting in 1893, but soon gave it up on account of the unsuccessful results due, he says, partly to faulty technique and partly to selection of unsuitable cases. In the 1898 paper he advised grafting at the first, second, or third dressing after curetting the granulations under an anæsthetic. He held that it was never possible to say with any certainty that all disease had been removed, and that cases in which it was advisable to close the mastoid wound were exceptional. He concludes the paper by saying that he had no doubt that epithelial grafting, notwithstanding its often considerable technical difficulties, would become more and more appreciated, whereby the practice of the radical operation, so beneficent in its results, would no longer be restricted through fear of a prolonged after-treatment.

In 1897 Alfred Denker, then of Hagen, in Westphalia,[17] now Geheimrat Professor in Halle, speaking at the German Otological Congress in a discussion following a paper by Nolentius on the mastoid operation, suggested grafting by the Thiersch method in order to expedite cicatrisation of the open retro-auricular wound. In 1899 [18] he read a paper on the subject and advised grafting from the second to the fourth week. He cut a large graft which, he said, could, with a little practice, easily be done quickly and without an anæsthetic; this he divided with scissors into several portions, which he placed in position by means of Jansen's spatula; any graft over he replaced on the thigh. He left the graft exposed to the air, only placing a small strip of sterile gauze on the floor and in the lower angle of the operation cavity. The operation region was then protected by means of a sort of thimble, which was kept in place by bandages. Several well-known surgeons joined in the discussion on this paper. Siebenmann said that he gave ethyl bromide, or more rarely employed "suggestion narcosis," to curette the granulations and cut the graft, and that he placed the graft in position after the patient had recovered from the narcosis. He advised that the whole surface should be grafted.

Passow said that he found grafting less successful after the burr had been used than when the whole operation had been done with gouge and mallet. In a letter written to me in April, 1904, Professor Passow said: "I employ Thiersch grafts about eight days after the operation, but only if the discharge is small in amount. I have seen no advantage from grafting at the time of the operation."

Rudolf Panse (at the 1899 discussion) expressed doubt as to the value of grafting and attributed the good results to the second curetting. In a letter written to me in April, 1904, he said: "I consider Thiersch grafting (*a*) as dangerous if the flaps cover any diseased bone; (*b*) as unnecessary, for after the removal of all disease healing takes place in six weeks."

Scheibe (at the 1899 discussion) said that he grafted on the granulations. Jansen advised grafting immediately or at the first dressing. It is evident from the mention of Jansen's spatula, and from Jansen's own remarks at this discussion, that he was one of the pioneers in this field. Stoddart Barr [19] has quite recently described a method of inserting an epithelial graft through the meatus; he cuts the graft under local anæsthesia.

When the grafting should be done.—The graft may in a few selected cases, with advantage, be applied immediately on the conclusion of the operation for removing the disease. To conclude the whole matter at one sitting is certainly most desirable, but as Celsus [20] said, "Danger is apt to attend attempts to effect a cure too quickly and too pleasantly."

The operation cavity is never surgically clean and is often very foul, and I think the ultimate result will most often be better if the grafting is postponed for some days and the cavity again curetted. In a few complicated or specially foul cases it may be better to leave most of the wound unsutured in the interval, but ordinarily I close the mastoid wound entirely and apply a light dressing. I do not plug the operation cavity, but have it irrigated twice daily through the meatus with a mild antiseptic solution. When a sufficient interval, usually seven or eight days, has elapsed, the wound is re-opened and the surface of the tympano-antral cavity prepared anew by removing clots and granulation tissue. No antiseptic, which might destroy living cells, may be employed during the grafting stage. In the presence of intracranial complications the grafting operation is, of course, postponed until the issue of these dangerous conditions is known. There is no doubt in my mind that the second curetting of the wound is in certain bacterial infections a great advantage. In general surgery such treatment is often employed, and I have found it of conspicuous utility after the mastoid operation when the infection of the soft tissues tends to persist.

Technique.—Epithelial grafting is carried out in precisely the same way whether it follows immediately upon the conclusion of the bone operation or after an interval.

All bleeding having been arrested, the operation cavity is finally cleansed with hydrogen peroxide and warm sterile saline solution. (Fig. 1.) The skin of the thigh or arm having been previously prepared, a large epithelial graft, as thin as possible, is cut with a hollow-ground razor moistened with warm sterile saline solution. The inner aspect of the

FIG. 1.

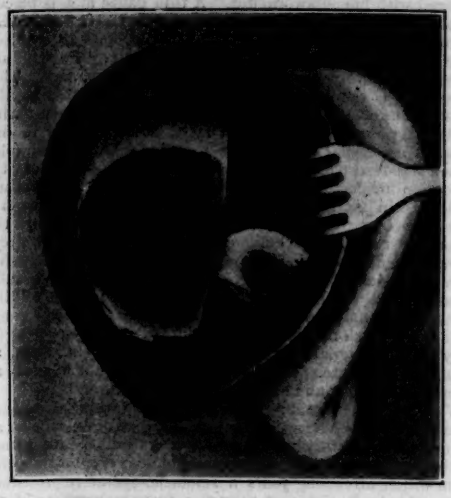


FIG. 2.

FIG. 3.

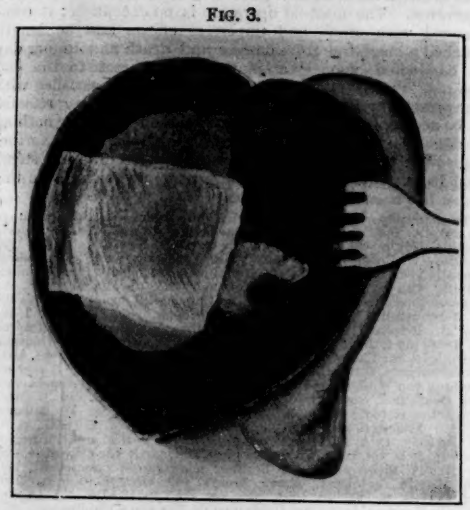


FIG. 4.

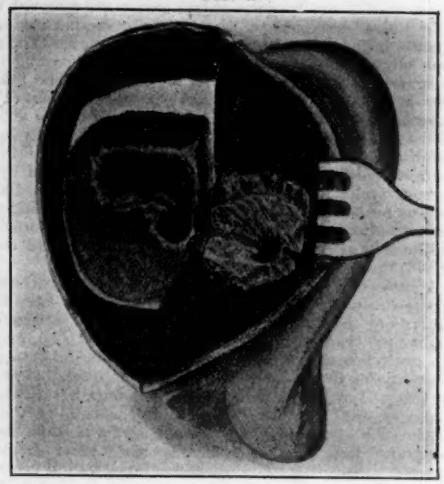
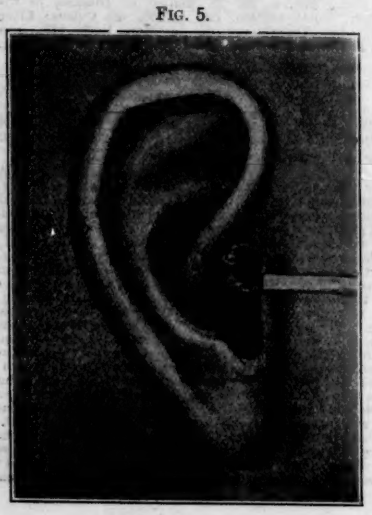


FIG. 5.



DESCRIPTION OF ILLUSTRATIONS.

FIG. 1.—The complete mastoid operation. The meatal flaps above and below, freed from cartilage, are shown stitched to the raw surface of the mastoid flap.

FIG. 2.—Shows the graft on a lifter placed over the bone cavity. The sutures of the meatal flaps have been removed. The bone operation has been performed seven days previously.

FIG. 3.—Shows the graft lying over the bone cavity, the lifter having been taken away.

FIG. 4.—Shows the graft lying against the walls of the tympano-antral cavities and slightly over-lapping their vertical boundaries. Note that the graft is not allowed to pass below the lower margin of the antrum. On the outer boundary (inner surface of the mastoid flap) two smaller grafts have been applied. Note that a portion of each graft has been coaxed round the edges of the external meatus—the posterior half of which is a raw cut edge.

FIG. 5.—Shows portions of the two grafts on the inner surface of the mastoid flap appearing on the external aspect of the meatus. They are thus caused to cover the raw cut edge which forms the posterior half of the new meatus.

upper part of the thigh yields as a rule an excellent graft, because here a flat surface of sufficient extent is readily obtained by stretching the skin. A convex surface or a concave surface, such as that over Hunter's canal, gives a graft of varying thickness. The cutting of a graft sufficiently large and thin requires practice and dexterity, and this is, I believe, the main difficulty in the universal acceptance of the method. The skin varies much in different individuals. A coarse skin does not yield a very thin graft; the finer the skin, the thinner and more perfect is the graft. The skin of children yields beautiful grafts.

It is quite easy to cover the roof of the antrum and the attic and the inner wall of the antrum with one graft, but it is more difficult to apply the graft to the inner wall of the tympanum proprium. The graft is best carried to the wound spread out on a microscope-section lifter. These lifters are made of steel nickel-plated and are of various sizes. The front border of the lifter is placed against the outer or superficial edge of the anterior wall of the cavity in the bone made by the operation. (Fig. 2.) The margin of the graft is now coaxed from off the lifter on to this superficial edge, and also above on to the adjoining superficial edge of the roof of the cavity, just below the linea temporalis. The upper and anterior margins of the graft thus placed are held in position by a probe. The section lifter is gradually withdrawn and the lower and posterior edges of the graft drop against the posterior and lower boundaries of the operation cavity; the graft thus bridges over the operation cavity. (Fig. 3.) The air and blood which separate the graft from the inner wall of the tympano-antral cavity are removed by a little skilful manipulation, but chiefly by suction through a pipette, insinuated beneath the edge of the graft. The graft then clings closely to the raw-bone surface, adapting itself accurately to its eminences and depressions. The graft is now held flat by the atmospheric pressure against (1) the anterior wall of the cavity, formed internally by the anterior boundary of the tympanum and attic, and externally by the anterior wall of the enlarged osseous meatus; (2) the anterior part of the roof of the cavity, formed by the tegmen tympani and the superior wall of the enlarged osseous meatus; (3) the inner walls of the attic and tympanum; (4) the tegmen antri; (5) the tuberosity formed by the horizontal semicircular canal and the Fallopian canal; and (6) the inner wall of the antrum. (Fig. 4.)

A little bleeding is apt to come from the neighbourhood of the Eustachian tube, and the pipette may have to be used more than once before the graft lies satisfactorily against the tympanic wall. If the tegmen has been removed the graft lies against the dura. It is undesirable to graft the posterior and lower part of a very large mastoid cavity, for this will make the permanent cavity unnecessarily large. Moreover, this part will heal rapidly enough by the approximation of the raw inner surface of the mastoid flap to the granulating bone surface. The main effort should be directed to covering the tegmen, the inner wall of the attic, tympanum, and antrum with epithelium, so that these cavities, which have for years been the site and harbour of disease, may be immediately epidermised.

The graft is held in place against the bone by the application of small, dry, sterile, cotton-wool mops or a strip of narrow ribbon gauze dusted with a non-irritating antiseptic powder, such as aristol. If the little plugs are used the first is placed in the lower part of the tympanum and often extends into the upper part of the Eustachian tube, the next is placed against the upper part of the inner wall of the tympanum and attic, and the next against the inner boundary of the aditus and antrum. About seven plugs are usually employed. A piece of sterilised gauze is then placed over all to prevent displacement. The little cotton-wool mops are held in angular forceps and pushed home by a steel probe or stopper, the smooth head of which prevents any chance of the graft clinging to the stopper as it is removed. One or two grafts are placed on the outer boundary of the operation cavity—namely, the inner surface of the mastoid flap—corresponding in extent to the tympanum, attic, and antrum. (Fig. 4.)

It is a good plan to arrange a portion of these external grafts so as to cover the raw edge of the posterior margin of the meatus, for here the cartilage is exposed without a complete skin covering. The edges of these grafts are thus inveigled through the meatus and appear on the skin surface of the concha. (Fig. 5.) The mastoid flap is replaced and sutured with fine silkworm gut. A thin gauze mop is placed in the meatus to support the grafts against the raw posterior edge of the meatus and a dry sterilised dressing is applied. The external dressing should be renewed daily. The plugs are removed with forceps from the third to the sixth day. This procedure is painless, as the raw bone is protected by the graft. The subsequent treatment consists in irrigation with hydrogen peroxide and rectified spirit twice a day or in dry gauze tamponning as often as may be thought desirable. When the dead part of the graft has come away the cavity, on careful inspection, is seen to have a smooth pink surface which is, in fact, a surface of epithelium and no longer a raw surface of granulations. In the course of a few days the colour of the surface changes from pink to pearly grey, showing unmistakeably that the grafting has been successful. The last place to heal is a cartilage granulation which usually presents just inside and behind the lower margin of the meatus. If tamponning is employed, sterilised ribbon gauze half or one inch in width is well adapted to the purpose. It may be impregnated with a mild astringent such as aluminium acetate. Iodoform gauze should not be used, as it promotes flabby and exuberant granulation.

Victor Hugo[21] said: "Every new offspring of science presents this double aspect, monstrosity as fœtus: wonder as germ." The history of all great operations is the same. Pathology was for long in advance of surgery, and a germ from which after long years a scientific operative procedure was evolved often at first gave rise to a monstrosity of an operation. The mastoid operation is no exception; it commenced with crude and imperfect efforts and at length reached a stage free from danger and death and in our day is conducted upon "a plan leading direct to the end desired."[22] We must not on this account rest satisfied with our present methods and results; "while anything remains to be accomplished," observed a great statesman, "nothing is done." The mastoid operation will be still further improved. "Look one step onward and secure that step," said Paracelsus.[23] In the attempt to follow that advice this paper has been written.

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ADDENDA.

I.

Mr. Sydney R. Scott, aural surgeon to St. Bartholomew's Hospital, has sent me an interesting letter on the subject of mastoid and labyrinthine grafting:—

24th June, 1912.

I am very pleased to tell you my views and experience of skin-grafting in connexion with the radical mastoid operation, small though this experience is compared with what yours must be. The first mastoid case which I grafted some five years ago was one of malignant disease, in which there was an unusually large excavation of the temporal bone. During the last three or four years I have made a rule of grafting every case as a part of the regular procedure of the radical mastoid operation, not at a subsequent stage, but at the same time as the mastoid operation. This immediate grafting undoubtedly hastens healing in a remarkable way, so that, instead of having to keep patients under close daily observation for four to six weeks, one can allow them to leave after the second week, and subsequently they require very little attention apart from the precautions against proliferating granulations, from some spot which may have escaped the graft. The economic result, as regards hospital patients, has been that many more can be passed through the few beds which are allotted for mastoid surgery, since the adoption of immediate grafts, than was possible in the days when no grafts were applied.

I take it that the object of grafting is to obtain a more rapid healing of the surface of the cavity than is possible without grafts. Incidentally grafting prevents contraction of the cavity walls and of stenosis which used sometimes to be noticed before grafting was adopted. Generally

speaking, I have not found age any contra-indication. It is sometimes convenient to take the graft from another person in the case of an infant or when there is much wasting.

I employ the immediate graft whether suppuration exists or not. In cases of extradural abscess complicating chronic otitis for which one performs the radical mastoid operation, I employ a graft, and close the post-aural incision, just as one does in uncomplicated cases. Whether the whole of the graft adheres or only a portion of it, I am convinced of the saving of considerable time in the healing process.

Again, in cases of post-operative suppuration where the immediate graft was applied the graft is not necessarily destroyed by the infective inflammation; even in quite unpromising-looking cases (which are fortunately not common) a considerable portion of the graft has been found to have adhered as the reaction subsides.

Coming to labyrinth cases, I have no reason for not grafting over a simple fistula of the external semicircular canal when the labyrinth is functionating, but when a fistula of the labyrinth is accompanied by acute infective labyrinthitis, it is, in my opinion, not permissible to graft without first securing adequate drainage of the vestibule, and even then it is questionable whether a graft over the opened labyrinth is advisable. In such cases, and generally in operations on the labyrinth, when relatively deep-seated pockets have been made into the labyrinthine capsule, and are bridged across by the facial nerve (as, for instance, in extirpation by the double route of vestibulotomy), it is better to limit the graft to the meato-mastoid portion of the cavity, leaving the labyrinthine cavities to become filled by reparative material, and this soon becomes epithelialised if one can prevent proliferation beyond the general level of the grafted surface.

Nor should I employ a graft over the labyrinth if the internal auditory meatus has been opened, as indicated by the escape of cerebro-spinal fluid, believing this escape of fluid acts as a safeguard and tends to prevent leptomeningitis. I have no objection to applying a graft to the meato-mastoid part of the cavity in such cases.

To discuss the important question of the effect of grafting on the acuity of hearing would necessitate looking up a long series of cases, in order to give exact details. I must be content with saying that I avoid applying grafts to the inner tympanic wall in cases in which useful hearing has survived the prolonged suppuration, but when great deafness exists, and is unlikely to be relieved by the operation, I do not hesitate to graft over the promontory and fenestræ.

II.

My colleague, Mr. H. J. Marriage, aural surgeon to St. Thomas's Hospital, has sent me the following account, which is eminently practical, of his experience of epithelial grafting:—

June 28th, 1912.

In reply to your inquiries *re* the grafting of mastoids, it has been my practice for the last five years in all cases of chronic mastoid disease to graft the cavity at the time of the removal of the disease, but in cases of acute mastoid disease where the radical operation is necessary, I do the grafting about a week or ten days after the primary operation.

The method I have adopted in the chronic cases is to thoroughly remove all trace of disease, then clean out the cavity with hydrogen peroxide (20 vols.) and apply one large graft which should be very thin. The graft is got into position by sucking out the air beneath in the manner which was first recommended by you, and is kept in its place by one long sterilised plug of plain gauze ½ inch in width, which is covered with aristol powder to keep it from sticking to the graft; the end of the plug is brought out of the meatus, and the graft then wrapped over the plug and also brought out of the meatus so as to cover the cut edge of the meatal wall, and form a complete covering for the entire cavity.

At first I used to leave the plug in for seven days, but now find that five days is sufficient for the graft to become adherent. After the removal of the plug the ear is syringed out daily with a weak solution of hydrogen peroxide, and a small piece of gauze put in to absorb the discharge; this is carried on for six or seven days, and afterwards patients are given hydrogen peroxide (10 vols.) to drop into the ear twice daily. The primary grafting, in addition to saving the patients the trials of a second operation, considerably shortens their stay in hospital, as usually they are able to leave at the end of about 12 days; it also saves them the pain of constant firm plugging, and is much less troublesome to the surgeon, as after they leave hospital it is only necessary for them to come up once a week for inspection and for the cauterisation of any small granulating areas which may be present. The majority of cases are healed by the end of six weeks, the last place to heal being usually the cut edge of the posterior wall of the meatus.

Even when it has been necessary to expose the dura of the middle and posterior fossæ, I apply a primary graft, as it grows on the dura extremely well. I have also grafted in the same way a dozen cases in which there was a bony fistula in the external semicircular canal with excellent results.

One case, a lady of 35, who had had otorrhœa for over 26 years, was sent to me as possibly a case of cerebellar abscess, as she had violent headache and very marked vertigo and was quite unable to walk straight. I diagnosed a fistula of the semicircular canal, and at the operation found that she had a large cholesteatoma which had eaten away the arch of the horizontal semicircular canal. I cleared away all the disease and applied one large graft in the usual way, and within six weeks the cavity was completely healed. About two months later I happened to meet her at a dance, and was able to prove for myself that she could dance through a long valse without any trace of giddiness. The operation was done four years ago, and there has been no recurrence of the disease or of the vertigo.

GRADUATION IN THE UNIVERSITY OF VIENNA.—During the past academical year 960 students have received the degree of Doctor in the University of Vienna. Of these, 25 belonged to the theological faculty and 456 to the legal, all of whom were men. The philosophical faculty promoted 200 men and 22 women, and the medical 247 men and 10 women.

THE OPERATIVE TREATMENT OF SIMPLE FRACTURE OF THE LONG BONES IN CHILDREN.

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A SUFFICIENT period has now elapsed since Mr. W. Arbuthnot Lane commenced operating on simple fracture at the Hospital for Sick Children, Great Ormond-street, to enable the end-results of his treatment to be collected and put upon record. It was in 1893 that Mr. Lane inaugurated a new departure in surgery by fixing the fragments in a simple fracture of both bones of the leg.[1] The first operation for simple fracture at the Children's Hospital was performed in 1907. Since that date 104 cases of fracture have been treated, and 72 submitted to open operation.

For the sake of clearness the subject-matter has been divided into sections, and at the outset opportunity is taken to review the principles which guide us in the treatment of fractures.

The principles of fracture radiography.—The introduction of the Roentgen rays marks an important epoch in the treatment of fractures. The proceeding known as "setting a fracture" can now be judged on its merits. But radiography must not be regarded as infallible; unless certain principles are borne in mind a false idea of the condition may be deduced. A single view merely indicates that a fracture is present; it is quite useless as an indication of the amount of displacement of the fragments. For this, two views taken in planes at right angles to each other are necessary in every case. Indeed, only when one view shows the fragments superimposed will the second picture indicate the full degree of displacement present (see Figs. 1 and 2). In children the transparent nature of the epiphyses introduces a special difficulty into the correct interpretation of radiograms. In such cases it is essential to have corresponding views of the sound limb.

The arguments in favour of operative treatment.—It is obvious that the unsatisfactory results of conservative measures can be the only justification for operative treatment.

Mr. T. Clinton Dent in 1908 wrote[2]:—

Fracture of the leg, involving the knee or ankle joints, or fracture of the femur uniformly leads to permanent unfitness for the work that devolves on these men (police), fractures occurring in the neighbourhood of these joints nearly always have the same result ..... My experience with regard to fracture of the leg has led to the expression of rather gloomy, perhaps pessimistic, views.

Mr. E. W. Hey Groves, at the Surgical Section of the British Medical Association in 1910, is reported as having said[3]:—

As judged by their after-history, cases of simple fracture of bones of the leg treated by non-operative measures showed very poor results, but there was not yet available a similarly extensive series of cases treated by operative means to effect a just comparison.

Mr. H. J. Paterson at the same meeting said[3]:—

Referring to results of fractures of both bones of the forearm, followed up some years back, it was found that in no single instance in which there had been a fracture of both bones of the forearm had the patient regained his full range of pronation and supination.

These expressions of opinion should be sufficient to convince anyone that the conservative method, after years of undisputed sway, has entirely failed to produce satisfactory results. Proceeding now to inquire why these results are so unsatisfactory, we naturally wonder whether displacement of fragments in a fracture *can* be reduced by the usual conservative measures. Referring again to the British Medical Association Meeting in 1910, Dr. E. W. H. Shenton said:—

In the observation of a very large number of fractures it became clear that fractures were practically never replaced in perfect position by external manipulation.[4]

We have now to consider whether accurate coaptation of fragments is necessary. If we regard the bony skeleton as the crystallisation of lines of force, the structure and configuration of the long bones become a subject of the highest

[1] Transactions of the Clinical Society, vol. xxvii., 1894.
Clinical Journal, Oct. 7th, 1908.
[2] Brit. Med. Jour., vol. ii., 1910.
[4] Ibid.

importance. Any alteration in the conducting medium will interfere with the mechanics of the whole limb, and necessitate a reconstruction of that portion of the skeletal apparatus before normal function can be regained. Nature's power of reconstruction varies inversely with the age of the patient, but even when at its zenith, as in the child, it demands a lengthened period of convalescence. We conclude, therefore, that accurate apposition of the fragments is desirable, and that the conservative methods at present in general use fail to attain it. By performing an open operation we should expect to be able to secure accurate coaptation of the fragments and to retain them in their correct position.

The contraindications to operation.—Operation is contraindicated when there is no displacement, as in subperiosteal and greenstick fractures, and whenever the affected portion of bone has little functional importance, such as the upper end of the fibula. Compound fractures must also be regarded as a contraindication to the routine operative treatment. In these cases asepsis is no longer under the control of the surgeon, and the insertion of a foreign body will always be a risky procedure. Unhealthy conditions of the skin in the region of the proposed incision, whether due to abrasions sustained at the time of injury or to pre-existing inflammation, preclude operative interference. Children under two years of age, when suffering from severe rickets, are unsuitable for operative treatment. Their bones are not sufficiently firm to sustain any fixation apparatus.

The essential features of the operation.—The operation is performed as soon as possible after admission, sufficient period being allowed to secure efficient cleansing of the skin, a tolerably easy matter in children. Twenty-four hours before operation the limb is cleansed with soap and water; six hours later it is painted with tincture of iodine; the iodine is again applied in the theatre. A sufficiently long incision is of paramount importance in facilitating the further steps of the operation: for instance, in fracture of the shaft of the femur an incision is made along the outer side of the thigh, from the lower border of the great trochanter to within a short distance of the external condyle. Sterilised towels are then secured to the lips of the incision with long-handled tissue forceps, and thus all skin is excluded from contact with the wound. All instruments are made with specially long handles in order that the hands, although encased in sterilised rubber gloves, need not enter the wound during any period of the operation. The frequency of minute perforations in rubber gloves renders this precaution necessary. The use of powerful crushing forceps dispenses with ligature of bleeding points.

The most difficult part of the operation is the approximation of the fragments, and infinite pains and patience are often requisite before this object is satisfactorily attained. It is found that extension alone is incapable of reducing the overriding which is generally present, and it is necessary to manipulate the fragments by means of specially devised forceps. Overlapping can often be corrected and end-to-end apposition gained by first increasing the deformity and causing the fragments to project through the lips of the incision until the ends are in contact, then the contact being maintained by forceps, the bone is forcibly straightened. In transverse fracture there is little tendency for the displacement to recur; but in spiral and oblique fractures, such as generally result from indirect violence, it is often difficult to maintain perfect apposition until the fixation apparatus has been applied. Occasionally the plate and screws have to be removed and reapplied several times before a satisfactory result is obtained.

Long narrow steel plates are used for fixing the fragments. These plates are perforated by a varying number of holes for the insertion of screws. The screws are threaded right up to their heads, and are intended to perforate the adjacent compact layer of bone without entering the medulla. The plate is manipulated by an instrument which retains it in position while the bone is being drilled, and the screws, held in a special holder, are driven home with a screw-driver. When the fragments have been fixed the wound is mopped dry, hæmostatic forceps are removed, divided fascia is sutured if necessary with catgut, and the skin edges are carefully united by means of Michel's clips. No tourniquet is used. Drainage is never employed. A departure from the above technique becomes necessary when dealing with the growing epiphyses. A plate interferes with the normal growth; hence it must either be dispensed with or removed as soon as it has served its purpose. In the case of the frequent fracture of the lower end of the humerus a plate is found to be unnecessary since when the lower fragment has been levered into position and the elbow acutely flexed there is no tendency for the deformity to recur. Some form of light apparatus is used to preserve the alignment, and to keep the limb at rest.

On the tenth day the clips are removed from the skin. The lower limb is then encased in plaster, the upper fitted with a light splint, and the patient leaves the hospital about 15 days after the operation.

It is desirable that the plate should be deeply buried in the tissues or, if it must lie close to the surface, that a thin plate be used in order to avoid irritation of the skin. The plate should also be as long as possible, so that the screws may obtain a firm grip of uninjured bone well away from the comminuted ends. In the event of one plate failing to secure immobility of the fragments additional plates are applied, the amount of metal left in the limb being of slight importance compared with the necessity of attaining rigid fixation of the broken bone. The periosteum receives no special consideration. It is stripped off the bone in the field of operation and no steps are taken to restore it to its original position. Recent work by Macewen confirms clinical experience that the periosteum is relatively unimportant and may be considered as a layer of fascia.[3]

The after-treatment resembles that generally used after conservative treatment and should be continued for a like period. Massage is commenced as soon as the wound is healed, but passive movement, especially if a joint be implicated, is not instituted until two to three weeks have elapsed.

The Results of Operative Treatment.

At this hospital Mr. Lane has treated 104 cases of simple fracture, and of these cases 72 have been submitted to open operation. The age of the patient has varied from 1 month to 12 years. There has been no instance of wound infection. Rarefying osteitis and the so-called "aseptic sinuses" have not been encountered. The mortality of this series of cases is *nil*. Radiograms in two planes at right angles to each other were taken both before and after treatment in all cases submitted to operative measures.

A metal plate has been used for fixing the fragments in 60 cases. Subsequent removal of the plate has occurred on two occasions. In one case, owing to its causing a projection beneath the skin of the forearm in a position liable to frequent injury and friction, it was found necessary to remove the plate 2½ months after operation. In the other case, an ununited fracture of the tibia of five months' standing, both ends of the bone were found to be atrophied, and the lower fragment was a mere shell. A long plate was fixed by three pieces of catgut. Three months later, the fracture being still ununited, the plate was removed.

The bones implicated are indicated in Table I.

TABLE I.—*Showing Bones Fractured in 104 Cases.*

—	Number of cases.	Number re-examined.	Operative treatment.	Re-examined.
Femur	53	28	44	26
Tibia	7	3	3	2
Fibula	1	0	0	0
Tibia and fibula	5	3	3	3
Humerus	21	7	15	7
Radius	4	3	3	3
Ulna	2	0	0	0
Radius and ulna	6	2	3	1
Clavicle	5	0	1	0
Total	104	46	72	42

It will be seen that the large majority of the cases are fractures of the femur, admittedly among the most difficult to treat satisfactorily by conservative methods. The actual statistics will be confined to those cases which have been

[3] The Growth of Bone, Macewen, 1911.

personally re-examined since September, 1911. In stating the results it will be advantageous to divide up the cases according to the affected bone.

Fracture of femur.—Of recent cases, 39 have been treated by open operation and the application of one or more plates. (Table II.) Of these cases, 23 have been re-examined and

TABLE II.—*Fracture of Femur—53 Cases.*

Condition on admission.	Treatment.	Number of cases.	Re-examined cases.			
			Number re-examined.	Imperfect anatomical and functional result.	Perfect anatomical result.	Perfect functional result.
Recent	Operative.	39	23	0	21	23
	Conservative.	9	2	2	0	0
Malunited.	Operative.	3	3	0	2	3
Ununited.	,,	2	0	—	—	—

21 show perfect anatomical and functional results. Of the remaining 2, one has shortening amounting to half an inch, with no limp or other disability; the other has a slight antero-external curving of the femur, without shortening or other defect. In other words, these two cases are instances of perfect functional, though imperfect anatomical, result.

Two of the recent cases required a second operation. In one, the plate having been broken during conveyance to the X ray room, the pieces of metal were removed and the fracture replated seven days later; the other patient was allowed to walk unaided at the end of two weeks, owing to a misunderstanding, with the result that the screws were torn away from the upper fragment and deformity recurred. This was corrected three months later.

Nine recent cases were treated by conservative measures. In 6 of these there was no displacement of the fragments. One had several ulcers on the affected thigh, another had severe spastic paraplegia and had never walked, and a third was afflicted with severe rickets. The two latter cases have been re-examined; deformity and shortening are present in both.

Three cases were operated on for malunited fracture of the femur sustained 3, 4, and 7 months previously. Of these, 2 required a second operation, as the deformity had not been fully corrected at the first attempt. All 3 cases have been re-examined; 2 show perfect anatomical and functional results, whilst the third has atrophy of the vastus externus muscle, probably due to interference with its nerve-supply, but there is no demonstrable loss of power in the limb, the circumference of the thigh is the same as on the healthy side, and the functional result is excellent.

Two cases of ununited fracture, both presumed to be due to birth injury, were submitted to operation. In one, barely a month old, the bone was found to be in such a soft, pulpy condition that no attempt was made to fix the fragments. The other case was plated in the usual way. Neither of these cases has been re-examined.

It was noticed that several cases appeared to show some lengthening of the affected limb, too slight to give actual figures. This matter will be reverted to later.

Fracture of tibia.—Two recent cases showed displacement of the fragments; in each a plate was affixed to the external surface of the bone. One of these cases has been re-examined; the result is perfect. (Table III.)

TABLE III.—*Fracture of Tibia—7 Cases.*

Condition on admission.	Treatment.	Number of cases.	Re-examined cases.			
			Number re-examined.	Imperfect anatomical and functional result.	Perfect anatomical result.	Perfect functional result.
Recent	Operative.	2	1	0	1	1
	Conservative.	4	1	0	1	1
Ununited.	Operative.	1	1	1	0	0

Four recent cases showed no displacement of the fragments. These were treated by conservative measures; the only one of these which has been re-examined is a perfect result.

An ununited fracture of the tibia of five months' standing, in a boy aged 2 years, was submitted to open operation. Both fragments were atrophied, to such an extent in the lower one that no screws could be inserted. A plate was secured with three pieces of catgut. After three months' immobilisation, the fracture being still ununited, the plate was removed. At the present time, three years after the first operation, the tibia is still ununited, but the bone is considerably stouter, and further operative treatment is being contemplated.

Fracture of fibula, 1 case.—A fracture of the upper third of the fibula, with considerable displacement, was treated by conservative measures. Operation was not deemed advisable in view of the slight functional importance of the upper end of the fibula. This case has not been re-examined.

Fracture of tibia and fibula.—Three cases of fracture of both bones of the leg showed displacement of the fragments. (Table IV.) These were treated by operation, and plates

TABLE IV.—*Fracture of Tibia and Fibula—5 Cases.*

Condition on admission.	Treatment.	Number of cases.	Re-examined cases.			
			Number re-examined.	Imperfect anatomical and functional result.	Perfect anatomical result.	Perfect functional result.
Recent	Operative.	3	3	0	3	3
	Conservative.	2	0	—	—	—

were affixed to the external surface of the tibia. On re-examination they all show perfect restoration of form and function.

Two cases with no displacement were treated without operation. Neither has been re-examined.

Fracture of humerus.—Three recent fractures of the shaft of the humerus were fixed with plates and screws. (Table V.)

TABLE V.—*Fracture of Humerus—21 Cases.*

Condition on admission.	Treatment.	Number of cases.	Re-examined cases.			
			Number re-examined.	Imperfect result.	Perfect anatomical result.	Perfect functional result.
Recent	Operative.	9	4	0	4	4
	Conservative.	0	—	—	—	—
Malunited	Operative.	6	3	3	0	0
	Conservative.	6	0	—	—	—

One of them has been re-examined. This patient is afflicted with paralysis of the muscles supplied by the fifth and sixth cervical nerves, the result of an attack of anterior poliomyelitis. The humerus had been fractured in the same position on two previous occasions. When examined six months after the operation the arm had regained its accustomed power and usefulness, although, of course, the paralysis was still present.

Six recent fractures of the lower end of the humerus were treated by open operation and reposition of the fragments without any fixation apparatus. Immobilisation in extreme flexion for two to three weeks, followed by massage and gentle passive movements, constituted the after-treatment. Three of these cases have been re-examined, and the results are excellent in every way.

Two malunited fractures of the shaft of the humerus were corrected by operation and the application of plates. Six malunited fractures of the lower end of the humerus were considered unsuitable for operative interference; four other cases were submitted to operation, and the deformity

corrected without the use of plates and screws. Three of these latter cases have been re-examined. All are much improved, but show some limitation of extension of the elbow.

Fracture of radius.—Two recent cases of fracture of the shaft of the radius were treated by open operation, plates being affixed in the usual way. (Table VI.) One is a

TABLE VI.—*Fracture of Radius—4 Cases.*

Condition on admission.	Treatment.	Number of cases.	Re-examined cases.			
			Number re-examined.	Imperfect result.	Perfect anatomical result.	Perfect functional result.
Recent	Operative.	2	2	1	1	1
	Conservative.	0	—	—	—	—
Malunited	Operative.	1	1	0	1	1
	Conservative.	1	0	—	—	—

perfect result; the other has slight impairment of supination, due to anterior curving of the radius. In this case the radius had been fractured in the same place three months previously.

One case of malunited fracture of the lower end of the radius was sent to hospital 5 weeks after the accident with spoon-shaped deformity. It was treated by open operation and corrected without the use of plates. On re-examination both anatomical and functional results were excellent. Another case of malunion seen 1 year after the accident was not thought suitable for operative interference.

Fracture of ulna—2 cases.—A case of fracture of the olecranon process was seen 16 days after the accident. Flexion was limited, but radiography showed the fragments in good position; consequently operation was not resorted to. A malunited fracture of the ulna was not considered suitable for operation when seen 6 months after the accident.

Fracture of radius and ulna.—One case had sustained a fracture of both bones of the forearm, which had been treated by conservative methods. Three months later the bones were re-fractured while carrying a weight. Operation was then resorted to, and the radius was fixed by two plates. These plates caused a projection beneath the skin and had to be removed two and a half months after the operation. At the recent examination of this case some thickening of the shaft of the radius was present, but all movements were unimpaired. (Table VII.) The patient was wearing a medal for gymnastics gained since the last operation.

TABLE VII.—*Fracture of Radius and Ulna—6 Cases.*

Condition on admission.	Treatment.	Number of cases.	Re-examined cases.			
			Number re-examined.	Imperfect anatomical and functional result.	Perfect anatomical result.	Perfect functional result.
Recent	Operative.	2	1	0	0	1
	Conservative.	2	0	—	—	—
Malunited.	Operative.	1	0	—	—	—
	Conservative.	1	1	1	0	0

In another case of recent fracture of both bones, two plates were applied to the ulna; seven days later, on finding from the radiogram that there was still displacement of the radius, a plate was applied to that bone also. This was a perfect result on leaving the hospital, but has not been seen since.

Two cases of recent fracture showed no displacement of fragments, and were treated by conservative means.

A case of malunited fracture of both bones of the forearm was corrected by fixing a plate and four screws to the ulna. Another malunited fracture of four months' duration was not considered suitable for operative interference. At the recent examination of this case both anatomical and functional results were bad.

Fracture of clavicle—5 cases.—Of four recent cases of fractured clavicle none showed displacement sufficient to warrant operative treatment. A case of fractured clavicle, in a boy of 8 years with convulsive tic of the shoulder, presented marked deformity, and no sign of union after one month's conservative treatment. This was treated by the application of a plate and four screws, and sent out of hospital with union in good position. None of these cases has been re-examined.

Summary of results.—Of simple fracture 46 cases have been subjected to re-examination; of these cases 42 had been treated by open operation.

34 cases of recent fracture submitted to open operation give—
- 30 perfect anatomical and functional results;
- 3 perfect functional, yet imperfect anatomical results;
- 1 imperfect anatomical and functional result.

7 cases of malunited fracture submitted to open operation give—
- 3 perfect anatomical and functional results;
- 1 perfect functional but imperfect anatomical result;
- 3 imperfect anatomical and functional results.

1 case of ununited fracture submitted to open operation gives—
- 1 imperfect anatomical and functional result.

As will be seen from the description of imperfect results, the criterion has been high, and four of these imperfect cases have such slight defects that function is in no way impaired.

It will be noticed that, whereas recent fractures give perfect results in over 88 per cent. of the cases, malunited and ununited fractures give a perfect result in only 37 per cent. This is a strong argument in favour of the adoption of early operative measures as a routine procedure, because if resorted to after malunion has taken place, the chances of a perfect result being obtained are greatly diminished.

Perfect function is present in 97 per cent. of recent fractures and in 50 per cent. of malunited and ununited fractures.

Sixty cases have been treated by the application of metal plates; 35 of these cases have been re-examined. Out of 31 recent cases, 27 show perfect results, 3 show perfect functional results, and 1 has slight impairment of supination of the forearm and has been classed as an imperfect result. Three malunited cases show a perfect result in two instances and a perfect functional result in the third. One ununited case shows a very unsatisfactory result, but no screws could be used, and an attempt was made to fix the plate by means of catgut. The plate was subsequently removed from the last case after a period of three months. The plate was also removed from one other case two and a half months after the operation.

In one case the plate was broken while the patient was being taken to the X ray room; this fracture was replated a week later. In two cases of malunited fracture of the femur the original plates were removed and fresh ones applied when the deformity had been more fully corrected. With the exception of the ununited fracture the plates were found to be firmly fixed in every instance, and it was necessary to unscrew in order to remove them. After a sojourn of some months in the tissues a steel plate becomes discoloured from oxidation, but no corrosion takes place.

On what do satisfactory results mainly depend?—The wider application of operation as an initial method of treatment is necessary if the best results are to be obtained. We have seen that the results of operative interference are most satisfactory when operation takes place within one week of the accident. It must be recognised that with conservative treatment fractures occurring in certain regions of the body persistently give unsatisfactory results; when

DESCRIPTIONS OF ILLUSTRATIONS.

FIG. 1.—Transverse fracture of femur showing no apparent displacement.
FIG. 2.—Another view of same fracture showing full extent of displacement.
FIGS. 3 and 4.—The same case after treatment.
FIG. 5.—Fracture of humerus before treatment.
FIG. 6.—Same case after treatment.
FIG. 7.—Malunited fracture of femur.
FIG. 8.—Same case after treatment.
FIG. 9.—The same case three years later.
FIGS. 10 and 11.—Spiral fracture of tibia and fibula before and after treatment.

FIG. 1.

FIG. 2.

FIG. 6.

FIG. 5.

FIG. 3.

FIG. 4.

FIG. 10.

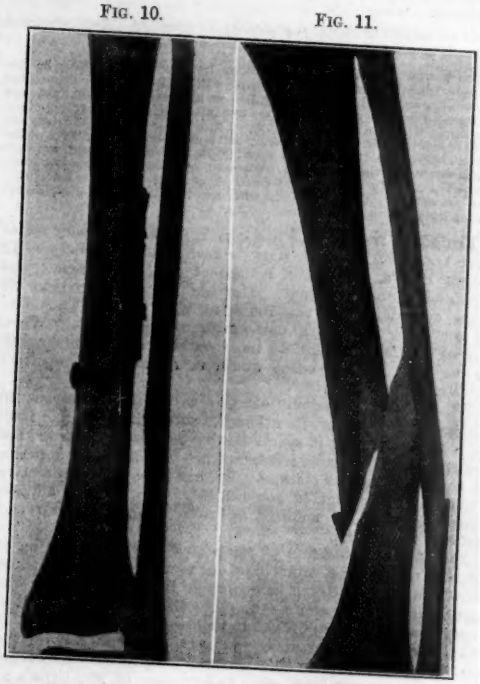

FIG. 11.

FIG. 7.

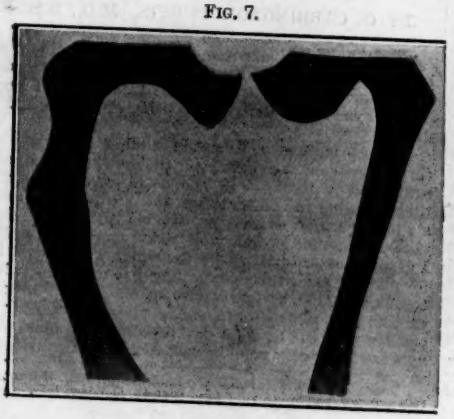

FIG. 8.

FIG. 9

in such cases the Roentgen rays show that displacement of the fragments is present operative measures should be instituted forthwith. In children we may instance fractures of the long bones of the lower limb, fractures of the forearm, fractures implicating the elbow and other important joints, as examples of those calling for operative treatment.

Coming to the operation itself, the main factor essential to success is absolute asepsis. It must be borne in mind that rubber gloves may be easily damaged by manipulations, which often require the application of considerable force. After all precautions have been taken, the skin of the patient and the hands of the surgeon and assistants should still be regarded as possible sources of infection. Patience and mechanical expertness may be mentioned as other factors making for success. Laceration of soft parts must be carefully avoided in order to minimise the chances of subsequent stiffness and induration.

As regards after-treatment, no curtailment of the period usually allowed with conservative treatment is permitted. Massage may be commenced as soon as the wound is healed, but passive movements are not instituted for about three weeks. Early passive movement seems to cause a secondary stiffness.

Is operative treatment justified by its results?—Ashhurst and Newell write [6]:—

> The advocates of operative treatment, in short, should either be able to show that the methods they propose will not increase the immediate mortality, and will greatly diminish or altogether prevent the unfavourable results of conservative treatment. ..... We may conclude then that with the exception of these four patients (4 bad results out of 40 cases) the results of the conservative treatment of fractures of the femur, excluding those of the neck, were satisfactory; and we very much doubt whether operative treatment of such cases could do more than give entirely useful limbs in 90 per cent. of cases, and leave only one out of every three patients with no other functional impairment than a limp.

Excluding fractures of the cervix, 40 cases of their series were traced. Four of these showed bad results and 13 others had a limp—i.e., a perfect functional result was obtained in 53 per cent. The leg was measured in 28 cases, and shortening was found in 21 of these. Thus only 25 per cent. showed a perfect anatomical result. When judged by the standard we have set ourselves in this paper, 75 per cent. of their cases would be regarded as imperfect results.

While fully conscious of the fact that fractures in children give better functional results than similar fractures in adults, yet it seems hardly necessary to argue that the results of operative treatment are immeasurably superior to any that can be obtained by methods of conservative treatment at present in general use. We must conclude, therefore, that as regards operative treatment the end justifies the means.

The ultimate condition of the plated limb.—It may be of interest to consider what happens to the plate. On those occasions when, after a considerable lapse of time, it was found necessary to remove the plate, the latter was found in every case to be firmly fixed and embedded in the bone. It has been stated that rarefying osteitis occurs around the screws, so that in time they become quite loose. Rarefying osteitis has never been seen in any case of Mr. Lane's at this hospital. The condition is frequently seen after wiring or plating of compound fractures, and it seems probable that it is always due to organisms introduced from without.

It is the practice of some surgeons to remove their plates at a subsequent date, under the assumption that a foreign body might determine the formation of a localised abscess should the patient suffer from any septicæmic condition. Theoretically this seems to be sound, but there is no evidence to show that such does occur after an aseptic operation.

It has already been mentioned that lengthening of the limb occurs in a number of cases after a plate has been applied. Slight lengthening was found at the re-examination of the majority of cases of fracture of the shaft of the tibia and several cases of fractured femur. This lengthening was found at varying periods after the operation, and was just as frequent at the end of a few months as after the lapse of several years. The age of the child does not seem to have any influence. It is difficult to see how the plate when situated on the shaft of a bone could affect its growth. It seems probable that the lengthening in these cases has either been present since the operation, and corresponds to the space intervening between the ends of the fragments, or has occurred during the post-operative immobilisation. The lengthening is more noticeable in the tibia, because that bone lends itself to such accurate measurement.

It is realised that the opinions expressed in this paper are not universally accepted. Even among surgeons who constantly apply operative treatment to fractures the most divergent views are held as to the best means of fixing the fragments and the effect produced by the introduction of a foreign body. The following extracts from the Proceedings of the Chicago Medical and Surgical Society in 1911 may be of interest in this respect.

> The introduction of nails, screws, or plates is followed by more or less necrosis of the bones, and these foreign bodies always act as irritants to the tissues and frequently result in sinus formation. ..... The question as to the frequency with which plates and mechanical appliances have to be removed is one upon which I have been unable to gather satisfactory statistics. My own experience is that over 50 per cent. of the plates have to be removed. I have never had an infection, but little sinuses form which refuse to heal until the plate is removed. There is no question but that when screws are introduced they will cause necrosis at the point of insertion. Inasmuch as they are foreign bodies they will be irritants, and I think in the majority of cases they will have to come out.[7]

There is a popularly accepted fallacy in existence at the present time that children who have sustained fractures do quite as well if treated by manipulation and splints as by operative procedures. This is certainly not our experience at the Hospital for Sick Children, where we see a large number of patients who have been treated unsuccessfully by conservative means. Such unsatisfactory results never occur in the cases dealt with by operation. As an instance of many similar cases I would refer to Fig. 7, where after conservative treatment of a fractured femur malunion has resulted.

Conclusions.—1. The treatment of simple fracture by open operation gives more perfect results than can be obtained by any other method at present in general use. 2. With reasonable care the dangers of such treatment are negligible. The mortality has been *nil*, and no instance of wound infection has occurred in a complete series of cases. 3. The insertion of a metal plate gives no trouble after a clean operation. 4. Operative treatment should be applied to recent fractures, and not reserved for the imperfect results of conservative measures. The chance of a perfect result being obtained is diminished by the length of period which elapses between the accident and the operation. 5. Rarefying osteitis and sinus formation do not occur after a clean operation. 6. In view of these results it is reasonable to urge the more extended adoption of Mr. Lane's methods for the treatment of simple fractures.

I am much indebted to Mr. W. Arbuthnot Lane for permission to publish his cases. The radiograms have been taken by Dr. W. Ironside Bruce.

[6] The Conservative Treatment of Fractures of the Femur, Annals of Surgery, November, 1912.

[7] Treatment of Fractures of the Long Bones, Wm. Hessert, Surgery, Gynæcology, and Obstetrics, August and December, 1911.

A NEW METHOD OF DEMONSTRATING THE PRESENCE OF BACILLUS COLI IN SEWAGE-POLLUTED WATER.

BY G. CARRINGTON PURVIS, M.D., B.SC. EDIN.

THIS is a preliminary note on the above subject and also introduces amethod of procuring moulds and torulæ from the air uncontaminated by bacterial growths. I propose to consider the latter method (procuring of moulds and torulæ) first.

I. This method consists in adding salicylate of soda (in 1 per cent. strength) to the nutrient medium—e.g., agar, and "plating" in the usual way in Petri dishes, then exposing the plates (after the medium has set) to the air for such time as may be deemed necessary. Suppose I take 100 c.c. of ordinary nutrient agar; this will require 1 gramme of salicylate of soda, which will give me 20 tubes for plating, each tube containing 5 c.c., or 14 tubes each containing 7 c.c. and a little to spare. It will be found on exposing the plates—or a single plate—to the air and incubating at 37° C. that no bacterial colonies will have appeared, but only moulds and torulæ. If nutrient gelatin

be used for "plating," then of course the incubation will have to be carried out at a lower temperature (22° C.), which is a better temperature for moulds, but gelatin is unsuitable as a medium in the tropics, or even in subtropical climates.

II. *The method of demonstrating bacillus coli in polluted water.*—To 100 c.c. of double strength nutrient broth (+ 10 Eyre) there is added 1 gramme of salicylate of soda; the broth is then put into tubes (varying in size) from 25 c.c. to 1 c.c. in each tube, and all the tubes are sterilised in the usual way and allowed to cool; to each tube is then added a quantity of the suspected water equal in volume to the broth contained in it, and the tubes (which now contain salicylate of soda equivalent to 0·5 per cent.) are incubated for a period (24 to 48 hours) at a temperature of 42° C. If turbidity of the broth results bacillus coli may be suspected and its identity will have to be proved by microscopical examination and by bio-chemical (e.g., sugar fermentation) tests. The only bacillus which is likely to grow along with coli is subtilis and they can be separated from each other, if necessary, by "plating." If incubation of the tubes be carried out at a lower temperature (37° C.), which I do not recommend, then bacillus proteus (proteus vulgaris) is also likely to grow far more vigorously than either subtilis or coli.

Bacillus typhosus (laboratory cultures) is completely inhibited by 0·25 per cent. of sodium salicylate and even by 0·2 per cent., and does not grow particularly well even in a 0·1 per cent. salicylate medium.

As bacillus coli is considered the "indicator" of sewage contamination, its detection is of importance in the examination of suspected waters.

III. *A suggestion.*—As noted above, 0·25 per cent. of salicylate of soda completely inhibits the growth of bacillus typhosus. It may be worth while to try its effects in early cases of typhoid fever; the drug being administered in small doses (say 3 to 5 grains), frequently repeated, it could be given in capsules which dissolve only in the small intestine, and any gastric disturbance which might have occurred when the drug is given in the usual way would thus be avoided.

Grahamstown, Cape Colony.

A FURTHER CONTRIBUTION TO THE STUDY OF

THE ETIOLOGY OF APPENDICITIS AS A RESULT OF A BLOOD INFECTION,

WITH PARTICULAR REFERENCE TO THE TONSILS AS THE PRIMARY SEAT OF INFECTION.

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AND

ALEXANDER PAINE, M.D., B.S. LOND.,

DIRECTOR OF THE CANCER HOSPITAL RESEARCH INSTITUTE.

IN this communication we shall attempt to advance toward a practical issue the suggestions that we put forward as a result of some experimental investigations reported in THE LANCET last year.[1]

1. *The Case.*

The case upon which our new facts are based was that of a girl, aged 15 years, who was taken to University College Hospital on June 2nd, 1912, suffering from a first attack of appendicitis. The illness was a very definite, but not unusually severe, one, and the diagnosis was particularly easy because in addition to the ordinary signs of the disease the enlarged and tender appendix could be easily felt through the abdominal wall. The duration of the attack was 48 hours. To Mr. H. C. G. Pedler, the house physician, we were indebted for the interesting and valuable observation that the right tonsil was inflamed, and in some of the crypts a follicular deposit was evident. No complaint of a sore-throat had been made by the patient, who was no doubt suffering far more from abdominal pain. Mr. Raymond Johnson operated at once and removed a large and swollen appendix covered with fibrino-plastic exudation. There was neither gangrene nor perforation, and there was no concretion. The patient made an uninterrupted recovery. There was no previous history of any serious illness.

[1] THE LANCET, Oct. 28th, 1911, p. 1189.

2. *The Investigation.*

While under the anæsthetic a culture was taken from the right tonsil, and the appendix was placed in a sterile tube.

(*a*) The bouillon culture from the throat showed mainly strepto-diplococci, but also a few staphylococci and an occasional bacillus. There was no difficulty in isolating the diplococcus from the culture.

(*b*) Cultures from the appendix made by smearing the exudate upon agar showed mainly the bacillus coli, but also some colonies of strepto-diplococci.

(*c*) Cultures from the sanious fluid which had exuded from the appendix after it had remained a few hours in the sterile tube at room temperature, and which had been then withdrawn and incubated in a Pasteur pipette, gave a *pure culture of strepto-diplococci.*

(*d*) Some of the sanious fluid inoculated upon agar and into bouillon showed strepto-diplococci, but a predominance of the bacillus coli.

These results with the sanious fluid are of interest because they bear out our experience recorded in the previous paper that in media such as bouillon, devoid of immune factors, the more saprophytic coli organisms rapidly get the upper hand, but in the blood serum the more pathogenic organism grows the more readily. This point as to the importance of serum Kretz had already dwelt upon in his paper.[2]

The diplococci from the throat and from the sanious fluid appeared to us morphologically and in cultural characters identical.

A. *Experimental results with the culture from the throat.*—The diplococcus produced arthritis with the usual accompanying symptoms in the rabbits intravenously inoculated and was again recovered in pure culture from the arthritis exudations. These investigations are being continued.

B. *Experimental results with cultures from the sanious fluid.*—Two groups of investigations were made: 1. Six adult rabbits were inoculated intravenously with subcultures in bouillon with negative result. This loss of virulence in bouillon is a frequent event in the cultivation of micrococci of the streptococcal group. 2. Six young rabbits of six weeks of age were inoculated from subcultures on *blood agar.* Of these animals the first suffered from malaise and diarrhœa for three days and on the fourth developed *arthritis* of the right shoulder-joint. It was killed on the eighth day. The diplococcus was recovered from the inflamed joint. The spleen was small and the other organs were healthy. The second animal developed arthritis of both knee-joints on the third day with fever and malaise. It was killed on the fifth day. The post-mortem examination showed *arthritis* and *appendicitis.* The appendix showed the middle third as the injured part, and there were necrotic areas in the deeper layers of the wall of the appendix precisely similar to those detailed and illustrated by us in our paper read before the Pathological Section of the Royal Society of Medicine in October, 1911.[3] The diplococcus was recovered in pure culture from the joints. The third rabbit developed *arthritis* of the left knee-joint on the third day and was killed on the fifth; save for the arthritis it was apparently healthy. The fourth rabbit, after transient malaise, recovered without any local lesion. The fifth rabbit developed *arthritis* of the right knee-joint on the third day. The sixth rabbit developed *multiple arthritis* and was killed on the fifth day. Thus five out of the six rabbits developed *arthritis* and one of these in addition *appendicitis.*

[3] Proceedings of the Royal Society of Medicine, 1911, vol. v., p. 18.

Pathological Investigations.

The experimental appendicitis needs no further description, for it resembled precisely the condition which we fully described and illustrated in 1911.

The appendix, however, from the patient deserves some detail in description. Sections showed an acute diffuse change mainly affecting the submucous and mucous coats and the serous covering of the bowel. The submucous and mucous coats were in a state of acute necrosis, the result of minute hæmorrhages from and thrombosis of the vessels in the submucosa. A fibrino-cellular exudation infiltrated the submucous coat, in which the lymphoid tissue was almost completely destroyed. The mucous membrane was infiltrated with inflammatory cells, and there was almost complete destruction of its epithelial covering and of

[2] Ueber die Aetiologie der Appendizitis, Verhandlungen der Deutschen Pathologischen Gesellschaft, April, 1910.

Lieberkühn's follicles, only a slight trace of the deeper crypts being visible. The muscular coat was also infiltrated with inflammatory cells, and the greatly swollen serous layer was œdematous and infiltrated with fibrino-cellular exudation. *Diplococci* were demonstrated in the submucous and mucous membranes, but were most numerous and easily demonstrated in the *serous membrane*. The bacillus coli had invaded the necrotic tissue and serous covering of the bowel. The condition of this human appendix was a counterpart of that found in the rabbits with appendicitis, as illustrated by us last year.

We think that this investigation brings us a step forward in the study of the etiology of appendicitis. Since Kelynack[4] in 1893 directed our attention to the relation of tonsillar inflammation to appendicitis many German investigators have devoted much attention to the point. Our earlier paper showed that in young rabbits a micrococcus which we look upon as the exciting cause of acute rheumatism could produce a local lesion in the appendix by direct blood infection, and bearing in mind the importance of tonsillar inflammation in rheumatism those results naturally strengthened the view put forward by Kelynack. This investigation takes us forward, because it would seem beyond reasonable doubt that the diplococcus in the tonsil and in the sanious fluid from the appendix were identical in nature and the cause of the lesions in the human throat and appendix and also of those in the appendix and joints of the rabbits. In other words, it seems to prove almost conclusively that *a cause of appendicitis may be a streptococcal invasion through the blood stream from a follicular tonsillitis.*

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF FATAL HÆMATEMESIS IN A CHILD DUE TO CIRRHOSIS OF THE LIVER.

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THE investigation of the etiology of hepatic cirrhosis in children is rendered the more difficult owing to the fact that the patient usually comes under observation for the first time at an advanced stage of the disease, when the previous history has been forgotten. In view of the comparative rarity with which hæmatemesis occurs in children in association with this condition, I thought it worth while to record the following case.

The patient was a girl aged 15. She had been in good health until the morning of Feb. 26th, 1911, when she complained of feeling sick after breakfast and was noticed to be a trifle yellow in appearance. The nausea continued during the day and in the evening she vomited; the vomit contained a small quantity of blood. During the following day the motions passed were black. On the evening of the 28th she vomited a large quantity of dark clotted blood, and the same night she was admitted to the wards of the London Temperance Hospital.

When I saw the patient on the morning after her admission she was semi-comatose and blanched. The temperature was 99·6° F., the pulse 140. The tongue was dry and the lips were covered with sordes. Nothing abnormal could be felt in the abdomen, which was quite flaccid. The heart's apex beat was feeble, and there was a faint hæmic murmur audible, the first sound being short and indistinct. Rectal feeds were given and calcium lactate, gr. x., was administered by the mouth four-hourly, an ice-bag being applied to the abdomen. She remained in this condition all day. On the following day the pulse was much weaker, and on March 3rd she was moribund. Saline infusion was given intravenously, but the patient died without recovering consciousness.

At the post-mortem examination the veins around the cardiac orifice of the stomach were distinctly seen, engorged with blood, but no actual "œsophageal piles" were demonstrated. Careful search revealed no trace of ulceration of the stomach or duodenum. The condition of the mucous membrane of the stomach called for no special comment. The liver was not enlarged; the surface of the organ was irregular from the presence of nodules, and on section large masses of fibrous tissue were seen distributed throughout the gland substance, the appearance being that of a typical hob-nailed liver. Microscopic examination showed the characteristics of an ordinary multilobular cirrhosis; there was no pericellular infiltration. There was slight general thickening of the mitral and aortic valves of the heart, but no nodules were seen, and the valves were competent. The other organs of the body were normal.

The patient's mother told me subsequently that the child had for a little time previous to the onset of the vomiting suffered from slight flatulence and a feeling of fulness after meals; she had occasionally complained of some pains in the joints. Otherwise she had had no symptoms. The mother herself was a healthy woman, and had had two boys and four girls all healthy; there had been no miscarriages. The patient was said never to have taken any alcohol, nor was there any history of acute specific infection to suggest a toxic origin of her condition.

I am indebted to Dr. W. Soltau Fenwick for permission to publish the notes of this case.

Gloucester-place, W.

[4] The Pathology of the Vermiform Appendix; London, H. K. Lewis, 1893.

A SWALLOWED FISHING-HOOK.

BY DR. DUBRUEL DE BROGLIO,

SURGEON-MAJOR, THIRD REGIMENT COLONIAL INFANTRY.

IN THE LANCET of July 27th, 1912, p. 279, is the record of a case of a little girl having swallowed a pin without any harm ensuing, and in this connexion the following case, of which I took notes in Tahiti five years ago, may prove of some interest.

A girl, 18 months old, was brought to my hospital in Papeete (Tahiti), the family reporting that she had just swallowed a fishing-hook, about an inch long. As in Dr. D. Sime's case, no scratch or incision could be seen, and on palpation there was no painful sensation in any part of the abdominal wall. No Roentgen apparatus being available in that part of the world, and doubting the reality of the fact, I placed the child under close observation, without any treatment, but ready to interfere surgically at the slightest symptoms. The first motions (the same evening and the next morning) were normal, but in the afternoon I was suddenly called. The mother, while watching her daughter as she was passing a large, soft motion, suddenly saw the end of the hook and tried to pull it out, but in so doing she hooked slightly the anal margin, and I was obliged to cut the hook to free it. The baby was under observation for three days more, remaining in absolutely good health, and subsequent reports were equally gratifying.

Had I had the opportunity of locating the exact position of the hook by X rays I should have deemed it necessary to remove it by a surgical intervention, and although the result of the present case has been satisfactory, I should not let the *vis Naturæ medicatrix* work by herself in a similar instance if Roentgen rays were available.

Rochefort-sur-Mer.

UNIVERSITY OF BRISTOL: HONORARY DEGREES.—A very interesting and imposing list of persons to be admitted to honorary degrees, at the installation of Lord Haldane to the Chancellorship of the University of Bristol in October, has just been published. Among those who are to receive the doctorate of laws are the Prime Minister, Earl Roberts, the Bishop of Bristol, and Sir Edward Fry. The doctorate of letters is to be conferred on the Right Honourable Augustine Birrell, Lord Fitzmaurice, and Canon Newbolt, among others; while among the prospective doctors of science appear the names of Professors Silvanus Thompson and Sydney Young. There are various medical recipients of honours, Professor J. Michell Clarke, Mr. F. Richardson Cross, and Dr. D. S. Davies being among the prospective doctors of law. The same degree will also be conferred on the Chancellor, the Pro-Chancellors, and the Vice-Chancellor; and on the Right Honourable A. J. Balfour, who will unfortunately be unable to be present.

Reviews and Notices of Books.

A System of Treatment by Many Writers. Edited by ARTHUR LATHAM, M.A., M.D. Oxon., F.R.C.P. Lond., Physician and Lecturer on Medicine, St. George's Hospital; and T. CRISP ENGLISH, M.B., B.S. Lond., F.R.C.S. Eng., Senior Assistant Surgeon and Lecturer on Practical Surgery, St. George's Hospital. In four volumes. Vols. I. and II.: General Medicine and Surgery. London: J. and A. Churchill. 1912. Vol. I., pp. 1352; Vol. II., pp. 1335. Price 21*s.* net each volume.

First Notice.

IN their preface to this important work on treatment, the editors state that the aim in view has been "to provide the general practitioner with a series of practical articles in as concise a form as possible, describing the modern methods of dealing with all diseases, and written by those who have had special experience in the subjects with which they deal." The first two volumes are devoted to matters connected with general medicine and surgery, the individual articles being contributed by a very large number of writers. Space does not permit us to do more than refer to the more important articles, but in general we may say that they are all carefully written, concise, and yet practical. Details are given of any procedure recommended sufficient to enable the reader to apply it practically. Prescriptions are given in full instead of vague statements as to drugs recommended, and all of them have been submitted to a consulting druggist, who is responsible for their correctness from the pharmaceutical point of view. The editors have been catholic in their inclusion of subjects, and the "System of Treatment" is in every sense comprehensive. A noteworthy feature is that each volume has an index which is complete for the whole work.

In the first volume among the articles dealing with medical subjects we may refer to that on the Principles of Treatment, which is contributed by Dr. J. Mitchell Bruce. It affords an interesting and thoughtful study of the aims and scope of treatment, the indications for which are classified into etiological, pathological, and clinical, while an important appendix on practice is added. Miss E. McCall Anderson deals with the Management of the Sick Room, and gives valuable directions in regard to various procedures which come within the province of the nurse, but with which it is of great importance that the practitioner should be thoroughly conversant. Dr. Eustace Smith treats at some length of the General Hygiene and Care of Infants and Young Children, and his article may be specially commended as affording a common-sense and practical collection of maxims for the management of the diet and health in childhood. Dr. F. Foord Caiger and Dr. H. E. Cuff describe in clear and authoritative manner the Treatment of Diphtheria. Directions are given for the use of antitoxin and for the treatment of complications. The authors give smaller doses of antitoxin than were formerly recommended, but they urge strongly the importance of using this remedy early, even in cases where the diagnosis is doubtful. Dr. T. J. Horder describes in some detail the Treatment of Infective Endocarditis, and lays stress upon treatment by specific agents, such as serums and vaccines, and by a combination of both methods. Dr. W. Hale White's article on the Treatment of Pneumonia affords an admirable account of the management of that condition. He inveighs against the use of expectorants, which he describes as unnecessary and even harmful. He gives special directions in regard to the treatment of heart failure in pneumonia, and refers with approval to the subcutaneous injection of adrenalin or of pituitary extract. Colonel J. Reid Roberts, I.M.S., contributes a useful article on the Treatment of Typhoid Fever, in which the various methods recommended are clearly stated. Useful directions in regard to the management of cases of the disease and the treatment of complications are given. The article on the Treatment of Diabetes Mellitus, by Dr. E. I. Spriggs, is also worthy of special note, as the questions of diet and drug treatment are considered in scientific fashion. The Treatment of Gout and Gouty Conditions is dealt with by Dr. A. P. Luff in an interesting, suggestive, and practical article. Dr. W. H. Willcox contributes a useful short account of Poisons and Antidotes. The first volume also contains articles by various writers upon Diseases and Affections of the Bronchi, Lungs, Mediastinum, Pericardium, Heart, and Blood-vessels.

The treatment of pulmonary tuberculosis is dealt with in four valuable articles, the first on the Principles of Treatment, by Dr. Arthur Latham; the second on Sanatorium Treatment, by Dr. David Lawson; the third on Treatment by Graduated Labour, by Dr. M. S. Paterson; and the fourth on Treatment by the Induction of Artificial Pneumothorax, by Dr. S. Vere Pearson and Dr. Claude Lillingston. In this article the choice of patients for whom the treatment is suitable is carefully stated. An important contribution to which reference must be made is that by Dr. James Mackenzie on Diseases and Affections of the Heart. The principles of treatment are carefully detailed, and the use of diet, drug, and other measures is examined and clearly stated.

Among the articles on medical subjects contained in the second volume we may mention those upon the Treatment of Various Forms of Anæmia which are contributed by Dr. Herbert French. The Principles of Dietetics are discussed at considerable length in a noteworthy article by Dr. E. I. Spriggs, who also deals in a separate section with the subject of Infant Feeding. Dr. Eustace Smith discusses the treatment of the little-recognised condition of Food Fever. The subject of constipation is dealt with in two articles—one by Dr. G. A. Sutherland on Constipation in Children, the other by Dr. Arthur F. Hertz on Constipation in Adults. Dr. Hertz discusses at length the treatment of the various conditions which lead to constipation. This article gives a full account of the various methods employed in the treatment of the individual forms of constipation. Dr. H. D. Rolleston deals with the Treatment of Ascites, and Mr. Edred M. Corner summarises the management of Acute Peritonitis and of Subphrenic Abscess. Dr. Arthur Latham contributes an article upon the Treatment of Tuberculous Peritonitis, and discusses in critical fashion the administration of tuberculin in this condition. Dr. H. D. Rolleston deals with the treatment of some of the commoner Diseases of the Liver and of its blood-supply, and Dr. A. E. Garrod contributes an interesting account of some of the more important Urinary Disorders.

The remainder of this volume is concerned with diseases of the nervous system, in which category falls the treatment of mental disorders. The subject of Epilepsy is considered in practical fashion by Dr. W. Aldren Turner. Dr. Maurice Craig and Dr. E. D. Macnamara discuss the Treatment of Insomnia. An interesting account of the management of cases of Neurasthenia and Psychasthenia is contributed by Dr. James Taylor. The subject of Cerebrospinal Syphilis is dealt with by Dr. E. F. Buzzard. Dr. J. S. Risien Russell treats of Tabes Dorsalis and certain other nervous diseases, and Dr. T. Grainger Stewart discusses the treatment of the Cerebral Vascular Lesions and the medical treatment of Tumours of the Brain. Dr. Wilfred Harris contributes an article upon Occupation Neuroses and Craft Palsies. The treatment of Mental Diseases is discussed in

a series of articles by Dr. Maurice Craig and Dr. E. D. Macnamara.

A Dictionary of Applied Chemistry. By Sir EDWARD THORPE, C.B., LL.D., F.R.S., assisted by Eminent Contributors. Revised and enlarged edition, in five volumes. Vol. II. With illustrations. London: Longmans, Green, and Co. 1912. Pp. 786. Price 45*s.* net.

THIS volume covers the ground from CHI to GO, and a little thought will show what an important series of substances falls into this interval and how many of them are of interest to medical readers. Examples of what is meant occur in the articles on Glucosides, by Dr. E. F. Armstrong; Creosote, by W. H. Coleman; Chocolate, Cocoa, Cordials and Liqueurs, Fusel Oil and Gin, by James Ennah, B.A., B.Sc., F.I.C., of the Custom House Laboratory; Ginger, by Cecil H. Cribb, B.Sc., F.I.C.; Fermentation, by Dr. Arthur Harden, F.R.S.; Chicory, Choline, Fenugreek, Fig, Garlic, by Herbert Ingle, B.Sc., F.I.C.; Formaldehyde, by Dr. Rudolph Lessing; Edible Oils and Fats, by Dr. Julius Lewkowitsch, M.A., F.I.C.; Cider, by William D. McCreath; Colloids, Cryoscopy, and Diffusion, by Dr. J. C. Philip; Disinfectants, by Dr. Samuel Rideal; Chloroform, Colchicum, Colocynth, Curara, Cusparia Bark, Dandelion Root, Datura Stramonium, Digitalis, Ergot, and Gentian, by Dr. Alfred Senier; and Fritts and Glazes, by Charles Simmonds.

The band of contributors selected by the editor contains the names of many well-known authorities on the subjects in which they specialise, and all through the articles bear evidence of thorough treatment and of careful revision to date. The unsigned articles have evidently entailed considerable work, and reflect credit upon the energy which Sir Edward Thorpe has devoted to his task to render a good and up-to-date account of the more scientific sections of the volume. In some cases the story is a very complete one, of which that on Fermentation, by Dr. Arthur Harden, is an example. His own careful original researches upon this subject add very materially to the value of this contribution. Another article showing exhaustive treatment is that on Explosives, by George H. Perry, of the Government Laboratory at Woolwich Arsenal. Professor Smithells, the professor of chemistry at Leeds University, has written an extremely interesting article on Flame, which puts clearly forward the nature of the chemical changes taking place in flames and the modern view as to the luminosity of hydrocarbon flames. His definition of a flame is that it is a glowing gas, and as far as terrestrial conditions are concerned the glow is the accompaniment of chemical changes. There is a somewhat lengthy article on Coal-gas, followed by a very interesting account of the manufacture of the modern gas-mantle, which has given such an impetus to coal-gas as an efficient lighting agent. The article on Disinfectants is written by Dr. Rideal, who has taken care to bring the materials into line with modern work. In his account of the testing of disinfectants he refers to our own work upon the subject in 1909.

The dictionary maintains a high standard; there is abundant evidence to show that this standard is going to be continued throughout the series; and the result so far is a work of reference of the utmost value to both technologists and scientific readers.

The House Fly: Disease Carrier. An Account of its Dangerous Activities and of the Means of Destroying It. By L. O. HOWARD, Ph.D. London: John Murray. 1912. Pp. 312. Price 6*s.* net.

THE part borne by flies as carriers of disease has been brought into prominence in recent years, and the importance of preventing undue multiplication of these insects has been insisted on by many writers. To be able to control the nuisance it is necessary to obtain the most accurate knowledge possible of the life-history and habits of these insects. The book before us supplies this knowledge in a readable form. It is not intended as a scientific monograph, but is written in a popular style, avoiding unnecessary technicalities. It deals in successive chapters with the zoological position, anatomy, habits, and reproduction of the house fly; with its natural enemies, animal and vegetable; with the various diseases supposed to be conveyed by its means; with the available methods of dealing with the fly nuisance; and with the various species which may frequent human dwellings. Illustrations are given of several of the commoner kinds. There is a bibliographical list, and a series of appendices dealing with the relationship of flies to excreta and with the means of combating them. The author proposes to call the house fly the "typhoid fly" as a warning against its dangerous potentialities. To us in this country the name seems scarcely justifiable, in view of the small part apparently borne by flies in spreading this affection here; but in accordance with the proverb as to giving a dog a bad name and hanging him, the label suggested might stimulate a campaign of destruction against the insects, which would be generally beneficial.

Die Therapie der Syphilis, ihre Entwicklung und ihr gegenwärtiger Stand. Von Dr. PAUL MULZER in Berlin. Mit einem Vorwort von Geh. Reg.-Rat Dr. P. UHLENHUTH. Berlin: Julius Springer. 1911. Pp. 100. Price, paper, 2.80 marks; bound, 3.60½ marks.

THE treatment of syphilis has at the present time attained a position of greater importance than it has ever reached before, not so much from the wider extent of the disease as from the new means of diagnosis recently obtained, and from the more powerful methods of treatment which we now possess. Our greater means of diagnosis enables us to speak with certainty on the presence of the disease, and therefore we can know when the disease has been utterly destroyed. The recent large output of works on this subject is to be explained mainly by the introduction of salvarsan.

In this little work a clear account is given of most of the drugs which have been lately employed in the treatment of syphilis—namely, various organic compounds of arsenic; but only a few pages are devoted to most of these compounds, the greater part of the book being occupied with a description of salvarsan. The author describes the chemical composition of "606," and the results of experiments on animals; then we have a description of the various forms in which the drug has been injected, and the technique of the intramuscular, the subcutaneous, and the intravenous injections. Then the effects of the "606" are considered in the various stages of the disease, including the later manifestations affecting the nervous system. The amount of the drug to be injected and the question of recurrences are discussed, and a small bibliography concludes the volume.

The book contains a useful account of the chief points in connexion with salvarsan, and, if only for this reason, is likely to prove useful to many of our readers.

A Guide to the Dissection of the Dog. By O. CHARNOCK BRADLEY, M.D. Edin., D.Sc., F.R.S.E., M.R.C.V.S., Principal of the Royal (Dick) Veterinary College, Edinburgh, and Lecturer on Comparative Anatomy in the University of Edinburgh. London: Longmans, Green, and Co. 1912. Pp. 241. Price 10*s.* 6*d.* net,

OF late years, since the motor has in a great measure displaced the horse, the veterinary practitioner has paid much more attention to the dog as a patient, and in many large towns in England there are now to be found

specialists who devote their whole time exclusively to the treatment of canine diseases. To the veterinary student, therefore, of the present day an accurate knowledge of the anatomy of the dog is essential, and it is a subject which must be taught thoroughly in all the veterinary schools. Up to the present there has been no text-book in the English language which the student could carry into the dissecting-room, and Professor Bradley's work arrives in time to fill the gap. The nomenclature adopted is that which may be called the Baden and Stuttgart modification of the Basle anatomical nomenclature of the human anatomist, and the book will be equally valuable to the comparative anatomist and to the veterinary student. The illustrations, some 69 in number, are well executed and show very clearly the respective positions of the various parts.

The publishers have done their part well, and the book is one which every comparative anatomist and every veterinary student will do well to place on his bookshelf as a work of reference.

LIBRARY TABLE.

Annals of Tropical Medicine and Parasitology. Series T. M., Vol. VI., No. 1 B.—This last-issued number of the "Annals" contains no fewer than ten papers, all of them of considerable interest. Professor G. Franchini, of Bologna, supplements his previous observations, published in THE LANCET of Nov. 4th, 1911, p. 1268, with a paper on the Presence of Leishmania in the Digestive Tract of Anopheles Maculipennis. After many experiments on fleas, lice, and bugs which had been fed on cultures of leishmania, he failed to find in these insects any parasites which could be identified as "Leishman bodies"; but turning his attention specially to mosquitoes, he found in A. maculipennis that these bodies were present in the digestive tract in great numbers and in various stages of development. The staining of the different parts of the parasites was so evident that he thinks it must be admitted that the parasite is alive and capable of reproduction. A number of coloured plates are appended to this paper, of which a notice has already appeared in our columns. In a short article by Dr. D. Thomson and Dr. G. C. Simpson on the Treatment of Beri-beri, details are given of three cases treated in hospital at Liverpool with a full mixed diet to which was added katjangidjo beans, as suggested by Hulshoff Pol, and brewers' yeast as recommended by Schaumann. The improvement in these cases was far more rapid than usual, and it is therefore suggested that in similar instances trial should be given to this method of treatment. The Vitality of, and Changes undergone by, Trypanosomes in the Cadaver of the Animal Host has been the subject of a research by Dr. B. Blacklock, who now reports that his experiments show that T. gambiense and T. rhodesiense can remain infective in the blood of the dead animal host for 48 hours. This infectivity need not, however, be attributed to any specially formed "resistant bodies," as living trypanosomes were found by microscopical examination in three out of five animals which had been dead for 48 hours. This report is illustrated by a coloured plate. Dr. Blacklock also gives the results of some laboratory investigations on the Trypanosomes Found in a Horse naturally Infected in the Gambia: a Double Infection. There were two distinct species of trypanosomes in the blood of this horse, the first being identified as T. vivax; the second is regarded by Dr. Blacklock as T. dimorphon, *sensu* Laveran and Mesnil. The Development of a Leucocytozoon of Guinea-pigs is described by Dr. E. H. Ross, who states that Kurloff's bodies are parasites, lymphocytozoa inhabiting only the mononuclear cells of the guinea-pig's blood. These lymphocytozoa have an intra-corpuscular stage, and ultimately give rise to free-swimming spirochæta-like bodies which may be gametes. The development of the spirochæta-like body, he says, is demonstrated. The name of Lymphocytozoon cobayae is suggested for this parasite. A coloured plate illustrates this paper. Captain G. J. Keane, R.A.M.C., gives an interesting Note on Anti-syphilis Measures in Uganda, where, unhappily, the disease has of late been making serious ravages. A series of Notes on Some Early References to Tropical Diseases forms a very readable contribution by Dr. Charles Singer, and Dr. J. G. Thomson supplies a preliminary note on the cultivation of T. rhodesiense. A description of Paropisthorchis caninus, the liver fluke of the Indian pariah dog, is given by Dr. W. W. Stephens; and Professor R. Newstead completes the number by furnishing an account of a new tsetse fly from British East Africa. From this brief summary of the contents it will be seen that the present number of the "Annals" contains a series of contributions of exceptional scientific value and general interest.

Grundzüge der pathologisch-histologischen Technik. Von Dr. ARTHUR MÜLBERGER, M.R.C.S., L.R.C.P. Mit 3 in dem Text gedruckten Abbildungen. Berlin: Julius Springer, 1912. Pp. 86. Price, paper, 2 marks; bound, 2.60 marks.—Although the number of procedures undertaken in both normal and pathological histology is very great, as a matter of fact only a limited and selected number is used in any one laboratory. The author, in giving a most serviceable epitome of the chief processes of pathological histology will consequently be introducing to many readers comparative novelties. We may remark that most of the processes are equally applicable to normal tissues, and hence, having regard to the compactness as well as the excellence of this brochure, we commend it alike to the physiologist and the pathologist. It consists of a general part (pp. 1–27) which gives an account of general methods, such as "fixing," decalcifying, freezing, cutting tissues or organs. We note one new process which may prove very useful. In formol-fixed specimens deposits are apt to occur, especially when there are many red blood corpuscles. These deposits can be removed by placing the sections in a solution composed of caustic soda, 1 gramme; distilled water, 100 c.c. Take 1 part of this solution and add it to 24 c.c. of 70 per cent. alcohol. Steep the sections in this fluid until the deposits disappear, and then wash the sections thoroughly in distilled water. In the special division (pp. 28–82) the pathologist will find a full account of many methods especially applicable to his province. In the appendix there is an account of photography in natural colours and of the autochrome process. This is an excellent and trustworthy little manual for the laboratory.

JOURNALS AND MAGAZINES.

Quarterly Journal of Experimental Physiology. Editors: E. A. SCHÄFER, F. GOTCH, W. D. HALLIBURTON, C. S. SHERRINGTON, E. H. STARLING, and A. D. WALLER. Vol. V., No. 1. London: Charles Griffin and Co., Limited. 1912. Price 6*s.*—We here briefly summarise the contents of an interesting issue:—On the Fusion of Nerves, by H. O. Feiss, B.A., M.D., Cleveland, Ohio, U.S.A. By this term is meant the tying of nerves together with the intention of obtaining a neural connexion between them. It should also include the effect of the scar on fibres in a single nerve fascicle, whether or not another fascicle is joined to it. After experimenting with the nerves of the cauda equina within the dura mater, the author turned his attention to the popliteal nerves of dogs, crushing and then tying them together with absorbable catgut and showing the effects. Such nerves grow together and may become one structure anatomically and physiologically.

The nerves may resume their original functions, but may also take on increased functions owing to new and different combinations which are brought about by the union. Very full protocols are given, for which reference must be made to the original. Several methods were adopted. The first used was fusion of nerves in continuity —e.g., the external and internal popliteal nerves, and the results, physiological and histological, were observed after short or long intervals of 21 or even 172 days. A "neuroma" forms at the union. Experiments were made by "secondary excision" above the neuroma and by other methods such as nerve transplantation by fusion—i.e., nerve grafting. Without discussing whether the outgrowth theory accounts for the restitution of function, the author finds that there is (1) regeneration and restoration of conductivity in both nerves below the scar; (2) conduction of impulses through the scar, both along the original paths and from one nerve to the other; (3) crossing of fibres within the scar as shown anatomically.—Mr. H. E. Roaf records his results on the Influence of Muscular Rigidity on the Output of Carbon Dioxide of Decerebrate Cats. After describing the method used for estimating the CO_2 and for keeping the condition of affairs within the lungs as nearly normal as possible, the author gives an account of the various means he employed to get rid of the rigidity—e.g., section of the motor nerves, curare, cutting the spinal cord, and so on. It is well known that decerebrate animals become rigid, but this rigidity differs from ordinary rigidity as it does not readily become fatigued. Moreover, it differs in that it does not cause an increase in the carbon dioxide output. From the results of other experiments it would appear that a large amount of the carbon dioxide output is furnished by some portion of the body other than abdominal organs or skeletal muscles.—The next paper, by E. B. Meiges, of Philadelphia, on the Structure of Smooth Muscle and its Response to Distilled Water and Hypertonic Salt Solution, is a reply by the author to some criticisms of Miss C. M'Gill on a previous paper by Mr. Meiges on this question. —Dr. James A. Gunn cites experiments to show the adrenin-like actions of cobra venom as studied, *inter alia*, on the excised eye, stomach, intestine, and other organs containing smooth muscle in the frog and cat, and on the secretory glands of the cat. The result is that while cobra poison causes contraction of some kind of smooth muscle and relaxation of others it is unlikely that it acts on muscle directly. As its action on the heart, plain muscle, and secretory glands corresponds so closely with that of adrenin, the presumption is that it acts by peripheral stimulation of some part of the sympathetic nerves.—Russell Burton-Opitz gives a fifth contribution on the Vascularity of the Liver —viz., the influence of the greater splanchnic nerves upon the arterial inflow.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XLIV., Nos. 5 and 6. Cambridge University Press. July 15th, 1912. Pp. 359–513. Price 9*s.* 6*d.* —The Gaseous Metabolism of the Submaxillary Gland with Reference to the Effect of Adrenalin and the Time Relation of the Stimulus to the Oxidation Process, is discussed by J. Barcroft and H. Piper. The study of adrenalin upon gaseous exchange derives its importance from the hypothesis that when introduced intravenously it stimulates the terminal portion of the true sympathetic system. The experiments were made on cats, rendered permanently unconscious by blocking all the arteries of the brain with starch grains. The oxygen used by the submaxillary gland in decerebrate cats is 0·016–0·028 per gramme per minute, and is much increased by injection of adrenalin, so that presumably appropriate stimulation of the sympathetic causes an increase in the metabolism of the gland. The authors argue that the dilatation of the vessels caused by adrenalin is due to metabolic products rather than to dilator fibres. Oxygen is used in abnormal quantities for some minutes after the saliva has ceased to flow. After chorda-stimulation the period of increased oxygen also outlasts the salivary secretion, so that probably gland, like muscle, is a mechanism in which the oxidation serves to replenish a store of potential energy which is liberated in the act of secretion.—T. R. Elliott's paper on the Control of the Suprarenal Glands by the Splanchnic Nerves is particularly interesting. We have only space to quote the author's conclusions. The suprarenal glands contain almost exactly equal amounts of adrenalin on each side. The effect induced by morphia or B-tetrahydronaphthylamine exhausts the residual adrenalin. All ordinary conditions of anæsthesia with ether, or chloroform, or urethane, are attended by exhaustion of adrenalin. Excitation of afferent nerves, such as the great sciatic, or direct injury to the brain, whether by simple pithing or by faradisation, also causes loss of adrenalin. The centre controlling such loss is close to the bulbar vasomotor centres. The efferent path is by the splanchnic sympathetic nerves. Their section prevents this exhaustion, and ether, chloroform, and other drugs, such as pilocarpine and physostigmine, or even diphtheria toxin, appear to have no exhausting action directly on the suprarenals. Faradisation of the splanchnic nerves discharges adrenalin into the blood, causing a characteristic drop in the rising curve of blood pressure, and such phenomena as paradoxical pupillo-dilatation.—D. Nöel Paton recommends the decapitated duck as well suited to experimental researeh on the circulation, and in a subsequent paper, together with A. Watson, he gives an account of the Actions of Pituitrin, Adrenalin, and Barium on the Circulation of the Bird (duck). Extracts of the pituitary body cause a marked fall of arterial blood pressure due to dilatation of the peripheral arterioles, which is antagonised by adrenalin and barium chloride. It also stimulates auricles and ventricles, both with the vagi intact and cut, but the effect is not manifested after the use of atropine. Adrenalin does not cause increased amplitude of contraction in the avian heart, while pituitrin and adrenalin have antagonistic actions on the avian heart.—F. Gowland Hopkins describes Feeding Experiments Illustrating the Importance of Accessory Factors in Normal Dietetics. The experiments, which were done on rats, confirm the work of others, showing that animals cannot grow upon so-called "synthetic" dietaries consisting of mixtures of pure proteins, fats, carbohydrates, and salts. Some substance or substances present in normal foodstuffs—e.g., milk—can, when added to the dietary in astonishingly small amount, secure the utilisation for growth of the protein and energy contained in such artificial mixtures. We refer our readers to the original for an account of the elaborate and convincing experiments which bear out the author's contention.—C. Lovatt Evans presents a Note on the Fate of Secretin in Pancreatic Diabetes. After complete removal of the pancreas prosecretin rapidly disappears from the intestine. The depressor substance, however, does not diminish. When part of the pancreas is left sufficient to prevent metabolic disturbance and glycosuria there is no appreciable loss of secretin, even after 14 days.—The elaborate paper by A. V. Hill on the Heat-production of Surviving Amphibian Muscles during Rest, Activity, and Rigor occupies nearly 50 pages, and the conclusions alone extend to two pages. We must refer those interested to the original. The following are the Proceedings of the Physiological Society: W. Legge Symes, Action of Gitalin on the Excised Heart of Rana Temporaria; F. W. Edridge-Green, Peripheral Colour Vision.

THE BRITISH MEDICAL ASSOCIATION.

EIGHTIETH ANNUAL MEETING IN LIVERPOOL.

THE SECTIONS.

MEDICINE.

FRIDAY, JULY 26TH.

President, Professor T. R. GLYNN (Liverpool).

Dr. WILLIAM EWART (London) gave a demonstration of

A Systematic Posterior Percussion of the Apices, and of the "Oval Interspinous Dulness" as an Aid to Early Diagnosis.

He said that the normal "oval interspinous dulness" was the corrected edition of the original "interscapular lozenge-shaped dulness" which was imperfectly analysed and too loosely described in the dorsal map of percussion in 1899 and again in 1910. Never unmindful of the value of a dorsal examination of the apices and of the lower apices (which would also be briefly considered) the author's previous diagnosis had hitherto lacked the elementary accuracy dependent upon a familiarity with the normal field of percussion, and with the precise boundaries of its normal pulmonary resonance and of its normal mediastinal dulness. These could now be defined by the pleximeter in their normal individual variations, as a guide to any abnormalities, whether respiratory (pleural, pulmonary, &c., including functional irregularities) or mediastinal (mainly structural and of varied derivation). That familiarity was indispensable for the earliest diagnosis of apical tuberculosis by physical signs, although this was only a small section of the general diagnostic usefulness of the new sign. For apex diagnosis the most valuable peculiarity of the oval subresonant dulness was the normal respiratory oscillation of its edges with inspiration and expiration. This afforded a standard wherewith to gauge the normal, or the deficient respiratory activity of the apex, the latter being the earliest of all morbid events in phthisis. It was also a test for the "functional" or the "structural" significance of any apical inexpansion. Again, it was the indispensable differential test between "local lesions" and "local atelectasis." Its close study opened up an important range of localising observations and of fine indications such as were alone adequate for the purpose of early diagnosis. The vicissitudes of the oval dulness under the varied respiratory affections (pulmonary emphysema, asthma, congestion, bronchitis, the pneumonias, the pleurisies and pneumothorax, &c.) were a vast subject to which only a cursory review could be given. The mediastinal aspect of the same study, that of the intensifications and of the encroachments of the dulness of the oval patch, was yet more varied in its scope; and this included an extensive surgical range of diagnosis. The chief medical representatives in that group were the cardiac, the pericardial, the vascular, the œsophageal, the neoplastic, and lastly, almost comparable in its numerical incidence with the group of phthisis, the glandular. All of them reacted also upon the behaviour of the "retrovascular dulness," of which the oval patch was the upward continuation. The practical conclusions were summed up in one statement: The method was indispensable for efficiency in apical and in mediastinal diagnosis. Its practice was a necessity; and this involved the unavoidable adoption of the means which were essential to its success.

Dr. S. H. HABERSHON criticised the paper.

Dr. P. J. CAMMIDGE (London) read a paper on

The Quantitative Regulation of the Diet in Diabetes.

He said that the diet in diabetes must be so arranged that the patient received a sufficient amount of food to supply the energy he needed without overtaxing his powers of metabolism in any direction. This could be satisfactorily accomplished only by a quantitative as well as a qualitative regulation. In many instances it was found that a limitation of the proteins was quite as necessary as of the carbohydrates, and that mere restriction of the starch and sugar foods was not sufficient to control the glycosuria. The exact proportion of each type of foodstuff that best suited the patient must be experimentally determined, and he must be taught that these quantities, no more and no less, must be consumed each day. To prevent the diet becoming monotonous the author had worked out a system in which the various foods were arranged in "rations" of approximately equivalent energy value, any one of which might be substituted for an equivalent quantity of a corresponding food in the "specimen" diet worked out for the patient. The "ration" for protein and fatty foods was an average serving of roast beef, which weighed 3½ oz. and yielded 300 calories. In some instances fractional rations were prescribed to avoid an excess of nitrogenous food being taken. Vegetables, fruits, and carbohydrate foods were similarly arranged in "rations," each of which contained 5 grammes or less of carbohydrate. By allowing one or more of these a day the natural craving for starchy food could be generally allayed, while the exact amount of carbohydrate taken could be adjusted to the patient's tolerance. Household bread was usually given instead of the so-called "diabetic" breads and bread substitutes, many of which contained as much, or almost as much, starch and were much more expensive, besides being difficult to obtain. In cases where nitrogenous equilibrium was easily disturbed it was advisable to prescribe a purely vegetable-fat diet for a few days at regular intervals, the semi-starvation which this entailed having a beneficial effect on the patient's powers of utilising both carbohydrate and proteins. As the object of the treatment was to so arrange the diet that the patient was always working his powers of carbohydrate and protein metabolism at a little below their maximum capacity, and was yet receiving sufficient food of a kind that he could use to supply the energy he needed, constant supervision was required for some time. The urine should therefore be examined at intervals to determine the state of his metabolism, and the diet be readjusted according to the findings and the progress of the case. Even in mild cases of glycosuria a quantitative regulation of the diet was advisable, for there was no hard-and-fast line between these and cases of a more severe type, the fundamental error being the same in both, and the one gradually merging into the other. The earlier treatment could be commenced therefore the better was the prognosis.

The PRESIDENT discussed the subject.

Salvarsan in Syphilis.

Major T. W. GIBBARD, R.A.M.C., communicated his experience in 1911 with salvarsan, showing its rapidity and efficiency of action in combination with mercury. He now gave the results in 162 patients treated either by salvarsan alone from the outset or in combination with mercury. After 6–21 months only 11 relapsed in seven months after injection. Of 102 cases treated with mercury for 6–21 months 81 relapsed in the course of 4·2 months. Salvarsan aborted syphilis in the primary stage in 99 per cent., no relapses occurring. Of 56 primary cases only two showed secondary symptoms, while of 23 such cases treated by mercury 21 showed secondary symptoms. Among 1562 cases treated by salvarsan injection there had been no untoward results and he had seen no affections of cranial nerves. He advanced the opinion that such complications were due to relapse of syphilis and not to the remedy. About 150 deaths had been recorded in the literature among 1,000,000 subjects, which were due to faulty technique or the ignoring of well-known contra-indications. Some deaths had occurred within a few days after a second injection in the early secondary stage, associated with punctiform hæmorrhages in the brain. They probably resulted from the presence of spirochætæ in the meninges, and indicated cumulative effect of arsenic in these cases. Similar results followed overdosage in rabbits. Major Gibbard advocated two doses or more of salvarsan, with intramuscular injection of mercurial cream in the interval: for instance, 0·3 gramme salvarsan, two injections of calomel cream, followed by a second 0·3 gramme of salvarsan. Neosalvarsan gave better results in doses of 1·2 grammes. The effect was similar, but there was less reaction and it was more soluble. It had the disadvantage of being very unstable and had to be used quite fresh.

The paper was discussed by the PRESIDENT, Dr. J. TAYLOR (Chester-le-Street), Mr. H. DE C. WOODCOCK (Leeds), and Mr. ARTHUR J. EVANS (Liverpool).

Dr. D. J. A. CHOWRY-MUTHU (Mendip Hills Sanatorium) read a paper on

The Treatment of Pulmonary Tuberculosis by Continuous Antiseptic Inhalation.

He said that having lived both in the East and in the West he made bold to say that where there was no civilisation

there was no tuberculosis, but as soon as the savage, living in his primitive way, adopted western civilisation and western habits consumption, cancer, and syphilis ravaged his country and destroyed his people. Civilised man, in his pursuit of wealth and comfort, spent half his energy in letting loose the demon of disease, and the other half in trying to catch him. The two main objects of the treatment of consumption should be to strengthen the soil and increase the resisting power of the tissues, and every remedy would fail that did not keep these two objects in view. During many years' sanatorium treatment in England he had treated at least 1000 cases of consumption, and had tried almost every known remedy—intravenous injection of formalin, tuberculin treatment both subcutaneously and by mouth, creosote, carbonate of guaiacol, hypophosphites, cod-liver oil, &c.—and all had failed to effect a satisfactory and permanent cure. Three main lines of treatment had saved about 50 per cent. of lives of all those treated in the sanatorium. They were: (1) open-air measures; (2) graduated exercises; (3) continuous antiseptic inhalation. 1. Fresh air, food, and rest prepared the way, and was the basis of all treatment of consumption. 2. The rationale of graduated labour was that rest and exercise were so adjusted and regulated by the physician that for every toxin generated in the system nature created an immunity which increased the resistance capacity of the patient and made for healing. At the Mendip Hills Sanatorium the graduated exercises were worked in four groups: (*a*) Graduated breathing and singing exercises, to open up the air cells, expand the chest, and increase the intake of oxygen. (*b*) Graduated labour. Patients began with chopping wood, then sawing, then planing wood. They went on to digging broken ground, and finally digging unbroken ground. (*c*) Graduated walking from half to five miles a day, then tramping and going further afield. (*d*) Camping. Tramping led to camp in the open air; patients took their own food and slept away from the sanatorium. 3. Dr. Chowry-Muthu had treated patients with continuous antiseptic inhalation since 1895, when he treated the first patient with inhalations of carbolic acid, creosote, and iodine. He got well, and had now a large family of grown children. Since 1899, when he opened his first sanatorium, he had used the inhalation in a more systematic way, and had treated in this way over 500 patients. Some of the first batch of patients treated in 1899 were still living. He had devised an inhaler, and used two or three kinds of solutions, so that the patients should not get tired of using only one kind and to suit their individual idiosyncrasy. The chief ingredients were: formalin, iodine, terebine, pumidine, pine, chloroform and rectified spirit. He felt sure that antiseptic inhalation did enter the air-cells and destroy the activity and growth of the pathogenic organism. In some cases the improvement had been so marked that he could not attribute it to anything else. His results for 1911 were: of 42 treated from 3 to 10 months, 20 got quite well (no physical signs and no tubercle bacilli); 6 greatly improved; 5 moderately improved; 6 improved; 4 went back; and 1 died from hæmoptysis. Of the 42 patients, 24 (20 of the first and 4 of the second division) had gone back to work and were doing well.

Dr. L. D. PARSONS (Gibraltar) read a paper on

Tuberculin in the Diagnosis and Treatment of Tuberculous Diseases, especially Pulmonary Tuberculosis.

His contention was that, whether in diagnosis or treatment, small doses of tuberculin could not be relied upon. 0·01 gramme of T.R. attained by degrees was the standard dose, but until this had been reached absence of reaction could not be relied upon as excluding the disease, and it needed to be exceeded in many cases, even to 1 gramme, to bring about recovery where the disease was established. The open-air treatment effected most in mixed infections by reducing the septic element, but for eradication of tubercle itself the specific treatment was necessary, and a combination of the two was desirable in advanced cases. The paper was based on an experience of 27 patients, 24 being of phthisis, 2 lupus, and 1 mastoid disease.

Dr. S. VERE PEARSON (Mundesley Sanatorium), in a paper on

The Production of Artificial Pneumothorax in the Treatment of Unilateral Tuberculous Disease of the Lungs,

exhibited an apparatus for producing artificial pneumothorax by the introduction of measured quantities of nitrogen into the pleura, the pressure being regulated by a manometer. Suitable cases were those without adhesions in which the tuberculous lesion predominated on one side, and was actively progressive and comprised only about 3 or 4 per cent. of phthisical subjects. The pneumothorax was maintained by refilling at intervals of seven or eight weeks till the disease subsided. Clear fluid often appeared and sometimes pus, constituting a hydro-pneumothorax, but this was aspirated when fresh nitrogen was introduced. Four cases were described, one with a temperature of 107° F. and another with severe laryngitis, showing the improvement in condition and gain in weight with subsidence of active disease which occurred at once.

Dr. C. LILLINGSTON (Gorleston-on-Sea) discussed the subject.

Dr. F. RUFENACHT WALTERS (Crooksbury Sanatorium) in a paper on

The Estimation of General Improvement in Pulmonary Tuberculosis

suggested a convenient scale for the measurement of general progress towards recovery in pulmonary tuberculosis. Anatomical considerations, he said, were insufficient for this purpose, and it was proposed to measure the general improvement in febrile cases by temperature, pulse-rate, and weight,[1] and in the afebrile by the amount of exercise which could be taken without constitutional disturbance. At the Crooksbury Sanatorium such patients undertook graduated exercise according to a scale of 36°, grouped into 11 classes with 11 corresponding tests. In the first group (W) walking exercise, in the second (X) carrying, in the third (Y) and fourth (Z) work or games of several grades, and in increasing amounts were undertaken. With three classes for the febrile and 11 for the afebrile it was possible to state the general condition on admission and on departure with some approach to accuracy. Cases with complications were similarly grouped but separately, grave disturbance of the digestive functions (amongst others) being regarded as a complication. *W tests:* walking on level or slightly undulating ground; WA up to 2 kilometres in half an hour; WB up to 6 kilometres; WC up to 12 kilometres; WD up to 18 kilometres, in corresponding times. *X tests:* carrying earth or stones up an incline 1 in 11 for 50 metres, returning with an empty basket. XA: 5 kilogramme loads for two hours, 12 journeys to the hour. XB: 7½ kilogramme loads for 3 hours, 16 journeys to the hour. XC: 10 kilogramme loads for 4 hours, 20 journeys to the hour, in each case completing the four hours with walking if necessary. *Y and Z tests:* work of various grades. *Second grade:* chopping wood the thickness of the wrist, using rake, hoe, or small spade in already broken ground. *Third grade:* cutting small boughs with an axe, using an ordinary spade or fork in already broken ground, or pushing a loaded barrow along level ground a distance of 50 metres. *Fourth grade:* Cutting trunks with an axe, planing wood, using pickaxe, spade, or fork in new ground, deep digging or loading a cart or pushing a full wheelbarrow up an incline. YA: Two hours of second grade and four hours of third. YB: One hour of second, two hours of third, and three hours of the fourth grade. ZA: Two hours of third and four hours of fourth grade. ZB: Six hours of the fourth grade. In training patients it was found advisable to introduce more variety than in the tests, and to allow some overlapping of the different kinds of exercise. By the adoption of a system like the foregoing it should be possible to agree upon a definition as to what should constitute slight, moderate, or great general improvement respectively, and to determine the value of different forms of treatment more accurately than at present.

Dr. W. MACAFEE, Dr. J. R. LOGAN, Dr. H. W. GARDNER (Shrewsbury), Mr. WOODCOCK, and Dr. G. A. CRACE-CALVERT (Ruthin Sanatorium) discussed the subject.

Dr. W. GORDON (Exeter) read a paper on

Further Experience of the Cardiac Sign in Cancer.

Further experience, he said, confirmed the view that the cardiac sign was of practical value in the diagnosis of cancer. It consisted in a diminution of the cardiac dulness, in recumbency, on digital percussion. In that posture, instead of, as normally in the adult, beginning above about the third costal cartilage, reaching rightwards to about the mid-sternal line, and measuring across about 3 to 3½ inches at

[1] See THE LANCET, July 20th, 1912, p. 153.

the fifth costal cartilage level, the dulness, in the cancer patient who presented the sign, began above at the fourth or fifth cartilage, had its right margin half an inch or an inch to the left of the mid-sternal line, and measured across less than 2 inches at the fifth cartilage. Often it measured less than 1 inch across. Sometimes there was no cardiac dulness at all. As digital percussion depended much on personal factors, these were his personal findings with moderately light percussion. Others might assign different limits. The sign might be due to (1) small heart (often absent); (2) a sort of emphysema due to lessened lung elasticity (often present); and (3) a flabby imperfectly filled heart, such as the flabby skeletal muscles and toneless small pulse suggested; and this would seem the chief mechanism of the phenomenon, for a cardiac dulness reduced almost to vanishing in recumbency in cancer might be found actually broader than normal in the erect position. It was obvious, of course, that if ordinary emphysema was present a small cardiac dulness was of no significance, and, if albuminuria, valvular heart disease, or retracted lung were present, absence of the reduction in dulness was also unimportant. Less obviously, but apparently usually, upward displacement of the heart or the existence of a large growth behind it prevented the diminution of the dulness. Yet allowing for these limitations to its usefulness, a very large number of cases remained in which it was of value. Thus, adding present cases to those published in 1908, he had found that *amongst cases which might have been cancerous* 93 cancer cases showed the sign in 87 per cent., and 89 non-cancerous cases showed the sign only in 19 per cent., or, stating the results in another way, of 98 cases showing the sign, 82 per cent. were cancerous, and of 88 cases not showing the sign, 85 per cent. were non-cancerous. That the sign was not merely an expression of wasting was evident, since (*a*) it was rarely found in non-cancerous wasting, even extreme—he had never seen it, for instance, in diabetes, even in absence of albuminuria; (*b*) in cancerous wasting, even when extreme, it was sometimes absent; (*c*) in cases of cancer which had not wasted at all it was sometimes present; and (*d*) the diminution of the dulness in cancer did not seem to be proportional to the wasting. Operable cases had been few in his series. But out of 6, 4 gave the sign, and it aided early diagnosis. Properly used, it should rarely cause mistake. It had several times saved him from mistakes into which others, well fitted to judge, but unacquainted with it, had fallen. Sarcoma seemed less often to cause it. If present where cancer might exist, the diagnosis of cancer should be rejected only after very careful consideration. If absent, and the case were an early one, its absence must not be given much weight, but if the case, supposing it to be cancer at all, must be a late one, the absence of the sign would strengthen the opinion that the case was non-cancerous.

SURGERY.

FRIDAY, JULY 26TH.

President, Professor RUSHTON PARKER (Liverpool).

Mr. J. F. DOBSON (Leeds) read a paper on

The Treatment of Gastric Ulcer by Excision and Partial Gastrectomy.

Ulcers of the lesser curvature or body of the stomach, he said, gave poor results after mere gastro-enterostomy. This had led the speaker to adopt the method of excision for these cases. In many instances, of which some were quoted, such cases after gastro-enterostomy suffered either from stenosis or fatal hæmorrhage. In five cases excision had been perfectly satisfactory. In one case adhesions after excision required subsequent gastro-enterostomy. In four cases recurrence of ulceration took place, and in one of these fatal perforation occurred. In two, a secondary gastro-enterostomy was followed by complete recovery. In one case the recurrent ulceration was in a fresh site on the anterior gastric wall, but in all others it was in the scar of the first ulcer. This showed that it was wiser to perform a gastro-enterostomy as well as the excision. In four cases this had been done. In all the results had been perfect, both in recovery and freedom from symptoms.

Mr. W. I. DE COURCEY WHEELER (Dublin) thought that the immediate mortality of such an operation as had been described made it a doubtful alternative to gastro-enterostomy. In a woman, aged 30, with pyloric stenosis and a second stricture nearer the cardiac end, a wide excision had to be performed. Cases with many adhesions presented special difficulties in the performance of excision.

Mr. E. W. HEY GROVES (Bristol) suggested that the solution of the difficulties of such cases as those under discussion was to be found in first performing a gastro-enterostomy, and then at a subsequent period the excision could be done with comparatively little risk. The fact that many apparently inflammatory lesions had already become the starting point of malignant disease was one of the strongest reasons of excising all these doubtful ulcers.

Mr. DOBSON, in reply, said that he would restrict excision to cases in a fairly good general condition.

Mr. DE COURCEY WHEELER read a paper on

The Surgery of the Sacro-iliac Joint.

In the first place it was pointed out that there was no synovial cavity, all disease beginning in the bones. The posterior aspect was thickly covered by muscles and big ligaments, but the outer was covered only by the gluteus medius and a thin shell of iliac bone. Doubt was thrown on the existence of the classical symptoms in any but cases too advanced for surgical treatment. In early cases such signs as sciatica radiating into the lumbar region, restricted movement, especially in turning, and the radiogram ought to lead to correct diagnosis. Without surgical treatment recovery was very rare. Lantern slides were shown illustrating the operation suggested, and notes of three cases treated by it were read. In one, a man aged 40, sciatic pain and raised temperature began the symptoms, and after some time an X ray photograph showed a focus of sacro-iliac joint disease. A small bony abscess was opened and after scraping was filled with bismuth paste. This was followed by good recovery. The method of operating was as follows. The point of attack on the bone was on the outer surface of the ilium midway between the sacro-sciatic notch and the posterior third of the iliac crest. The joint was opened by a burr worked by a revolving brace.

Mr. P. NEWBOLT (Liverpool) related a case in Mr. Alfred Willett's practice illustrating the urgent necessity for more radical methods in the treatment of sacro-iliac disease.

Subclavian Aneurysm.

Mr. NEWBOLT related the case of a successful treatment of a left subclavian aneurysm in a woman. Syphilitic history was present. The sternal end of the clavicle was removed and the first part of the subclavian artery tied with two silk ligatures. Recovery had been good, and the patient was shown.

The PRESIDENT spoke in favour of the use of Lister's sulpho-chromic catgut.

Mr. A. FULLERTON (Belfast) related instances in which he had tied the femoral and the subclavian arteries with catgut.

Mr. C. H. FAGGE (London) also spoke of personal experience of the use of No. 3 catgut for ligature of such large vessels as the external iliac, subclavian, or axillary. He had for many years discarded the use of silk entirely.

Mr. P. J. FREYER (London) read a paper on

1000 Cases of Total Enucleation of the Enlarged Prostate.

He said that three of the original four cases, which he had first published 11 years ago, were still alive and well, and had recently written to him expressing their gratitude. An analysis of the whole series showed: age 49 to 90—average 69; weight of prostate, ¼ oz. to 17 oz.; deaths, 54 = 5½ per cent. All other cases were completely successful. Mortality had diminished from 10 per cent. in first 100 to 3 per cent. in the last 100. In only about half the fatalities was death due to the operation, the majority of the rest were due to uræmia resulting from kidney disease. He denied that the cases that recovered would ever be anything but complete and absolute successes.

Mr. C. A. MORTON (Bristol) asked about late results in cases of malignant disease.

Mr. FULLERTON asked whether any distinction in operating was to be made between fibrous and adenomatous cases. He had operated on 60 cases with 7 deaths.

Mr. H. A. BALLANCE (Norwich) asked whether in complicated septic cases any special modification of the technic should be used. In his opinion a perineal drain was often useful.

Mr. HEY GROVES expressed great appreciation for

Mr. Freyer's brilliant work, but pointed out that the mortality of prostatectomy, as judged by hospital cases of experienced surgeons, was very much higher than that indicated by the present communication. He had collected all available cases from all the large hospitals in the kingdom for one year, and these showed a mortality of 40 per cent., and although these figures were published four years ago he believed that the general mortality was much nearer 40 than 4 per cent. The point was one of great importance, because it would lead to a careful selection of cases before the operation was undertaken. He thought that whilst the operation was one of the easiest to perform that the surgeon ever had to undertake, yet the choice of those cases likely to survive was one of considerable difficulty. The most important evidence in prognosis was the functional condition of the kidney. In all doubtful septic cases the operation ought to be in two stages, the bladder being opened and drained some weeks before the prostate was removed.

Mr. NEWBOLT asked how a fibrous prostate could possibly be enucleated in a few minutes. His mortality among hospital patients had been high.

Mr. FREYER replied that the fibrous cases were often difficult and what he had said about short operations did not apply to these cases. The statistics of St. Peter's Hospital showed 98 cases with only 2 deaths. He supported the idea of a preliminary cystotomy. He had never drained by the perineal route, and was quite content with a suprapubic tube 1 in. in diameter. He never operated upon malignant cases unless the gland was confined within its capsule, as evidenced by mobility.

Mr. HERBERT J. PATERSON (London) read a paper on

Acute Appendicitis,

based on the consideration of 95 consecutive cases. It was pointed out that great differences of opinion still existed about appendicitis between those who held that operation ought to be performed in every case as early as possible and those who thought that each case should be treated on its own merits. The disease still claimed over 1500 victims every year in England and Wales, and they must regard these deaths as being mostly preventable but not prevented. A list embodying all cases (95) seen during the past three years was presented, and these had all been treated by operation directly the diagnosis was made. In his practice there had been three periods: In the first, no case offering any prospect of temporary amelioration was operated on in the acute stage; with these the mortality had been 16 per cent. In the second stage, an attempt was made to treat each case on its own merits, and the mortality was 13 per cent. In the present period, when every case was operated on as soon as possible, the deaths had been only 5—i.e., 5·2 per cent. In 17 cases there was diffuse peritonitis, in 9 cases local suppuration, in 6 the appendix was gangrenous, and in 3 it was perforated without adhesions. In 44 per cent. of the cases there was peritonitis or a gangrenous appendix without protective adhesions. At least 12 of these cases were such that no symptoms or signs were present indicating the gravity of their condition. Probably four out of the five fatal cases would not have died if they had come in earlier for operation, all of these having been ill for more than four days. If the interval cases were included with the acute cases during the past three years the mortality was only 3·2 per cent. It was for the opponents of universal early operation to show results by their method not only as good but better, because it involved the objection and risks incident to waiting for a period of time with an unsound appendix and then submitting to a subsequent operation.

Mr. MORTON said he believed it would be impossible to produce a series of cases showing better results than these. He maintained that in the intermediate cases it was impossible to be sure that the disease was either localised or non-progressive. He held it far better to avoid enemata altogether and to leave the large bowel alone in cases which were not operated on.

Sir GEORGE BEATSON (Glasgow) said that appendicitis presented itself in practice sometimes quite early and sometimes quite late in the disease. In the former case the results from immediate operation were all that could be desired. But in the latter the results were often bad, and it was not right to extend to such cases the methods and expectation which were applied to the early cases. Could surgery be supplemented or replaced by other means in these intermediate cases? If peritonitis already existed, then there could be no question as to the necessity of immediate operation. In those cases where the disease had become localised it was better left for medicinal and dietetic treatment. But surgical attack on these intermediate cases with localised disease was fraught with grave danger. By following these principles he had had in 273 hospital cases 264 recoveries and 256 operations.[1] Apart from operation, the important points to be observed were starvation, rest to the intestine by morphia, enemata every other day, and local hyperæmia by Bier's method or poultices.

Mr. W. J. GREER (Newport, Mon.) asked why these intermediate cases occurred. Students and practitioners ought to be taught how to recognise the cases and send them for treatment in the early stages.

Mr. C. F. CUTHBERT (Gloucester) spoke of the desirability of operating on every case of appendicitis as soon as it was seen. Especially in children was there the greatest danger in delay.

Mr. FAGGE strongly opposed Sir George Beatson's views, and held that in every case operation should be done as early as possible.

Dr. F. W. COLLINSON (Preston) urged the importance of teaching that the recognition of the disease in its early stage was difficult, and not to be left to the judgment of a single opinion.

Mr. NEWBOLT believed that one could never have any security as to what was inside the abdomen in appendicitis until one had looked inside. He related his experiences in 63 cases, 35 interval operations and 28 acute. He had only lost three, and these all had diffuse peritonitis.

Mr. H. J. STILES (Edinburgh) agreed that the mortality in the intermediate cases was too high. The use of chloroform in these patients was, in his opinion, accountable for many cases, and it ought never to be given in cases of acute toxæmia. The second cause of high mortality was that the appendix was often left. A third cause was that gastric lavage was neglected. The only condition which justified delay was peritonitis associated with obstruction, in which gastric lavage for 12 to 24 hours would greatly improve the chance of operative success. Washing out the peritoneum was another most dangerous procedure which should never be done.

Dr. IRVING CAMERON (Toronto) supported the great value of gastric lavage in all acute cases of appendicitis. He strongly supported Sir George Beatson's views, and never had a case operated on after the fifth day if possible to delay.

Mr. PATERSON, in replying, expressed a doubt about the hard-and-fast time limit; these ideas were mere relics of obsolete superstition. There was a very real danger of some secondary septic disease developing whilst a case was waiting for the interval operation. In four cases he had known hepatic abscess, subphrenic abscess, or other distant septic disease develop whilst patients were waiting. He challenged Sir George Beatson to say how he could decide in any given case that the disease was localised.

Sir GEORGE BEATSON maintained that it was possible to recognise cases of localised or stationary disease.

Dr. W. EWART (London) read a paper on

The Dorsal Method of Examination in the Diagnosis of Appendicitis.

He maintained that dull patches to percussion over the posterior iliac spines were normally present and indicated absence of appendicitis. Absence of dulness on the right side indicated appendicitis. After appendicectomy the dull patch on the right side disappeared permanently. The right dorsum ilii was never normally dull, but dulness here was often significant of abscess.

MEDICAL SOCIOLOGY.

FRIDAY, JULY 26TH.

President, Dr. J. C. MCVAIL (Glasgow).

A long and animated discussion took place in the Section of Medical Sociology on July 26th on Alternative Methods of Medical Remuneration under the National Insurance Act.

Payment by Capitation v. *Payment per Attendance.*

Dr. HENRY HARVEY (Liverpool), in an opening paper,

[1] THE LANCET, May 11th, 1912, p. 1256.

gave reasons for regarding a capitation system of payment as the most workable and satisfactory under all the circumstances. He thought the medical profession was agreed on the following points: That some national system of sick insurance was desirable and inevitable; that the present club system, miserably underpaid and administered without due regard to the dignity and rights of the profession, could be tolerated no longer; that a system of salaried whole-time medical officers would not be acceptable; and that the control of the acting medical attendant must not be left to the friendly or other similar societies. What, however, the profession was not agreed upon was the method of remuneration for the services of its members under the National Insurance Act or under any of the proposed public medical services. Was it to be so much per head per annum or so much per attendance, or, as some suggested, a mixture of both? Extremely strong and apparently irreconcilable views were held on these points. The fierce, almost fanatical, opposition to any form of contract practice was due to the fact that the medical man was not accustomed to deal with averages. The essence of contract practice, as of all forms of insurance, was an average; it was not a question whether, say, 10*s.* per annum would pay the doctor for attending some individual man, but whether taking 500 average men and averaging the amount of sickness per annum from the best data obtainable 10*s.* per annum would offer a fair prospect of proving remunerative. Every visit paid by a medical man at a given fee was a contract; the case might be long or short, but on engagement the doctor had named the fee; he took the risk and averaged it. Dr. Harvey made the following points in favour of a capitation system: 1. It was the only system for which the Chancellor of the Exchequer could possibly budget in advance. 2. Once agreed upon a fair sum per head the system would work almost automatically. 3. There would be no complicated bookkeeping. 4. No running up of bills whose ultimate payment was often more than problematical. The doctor was saved the degradation of collecting his income in sixpences and shillings. 5. The doctor's financial interest coincided with a minimum of sickness—i.e., the interests of doctor and patient were identical; it was not to the interest of the doctor under this system to pay unnecessary "make-weight" calls; a malingerer would be at a discount because it would obviously be in the doctor's interest to take an alert, critical view of all suspicious cases; it would be possible in many cases, and would be economical in the long run to instil a little preventive medicine in the course of an unsolicited visit. 6. The doctor would be saved the financial anxiety and inconvenience which uncertainty of income gave rise to. Under a capitation system there must be in the contract the provision that the doctor should have a definite schedule of surgery hours and of hours between which a call would be accepted on contract terms; and a definition of night visits, which should be paid for by the patient.

Dr. P. R. COOPER (Bowdon, Lancs.) read a paper in favour of a system providing for free choice of doctor by patient and payment of doctor in accordance with work done. His first point was that such a system would preserve intact the proper relations between doctor and patient. Upon an intimate personal knowledge and interest in the patient depended the great factor of faith, which was so often the doctor's strongest therapeutic ally. For either doctor or patient to be bound to one another after that faith or trust was destroyed was detrimental to both. Real free choice of doctor would be secured; the only contract which should exist between them was one determinable at any moment on either side, as was now the case in general practice. The importance of payment of doctor in accordance with actual work done did not seem to be sufficiently realised by the profession. Medical attendance was a costly affair and tended to become more so. The old placebo methods were becoming extinct, and more scientific methods, involving highly technical skill, expensive apparatus, &c., were being introduced. The medical profession would be most unwise to bind itself in advance to treat people to an unlimited extent for a fixed annual fee per head—a fee that could never be large, and must necessarily be less in amount the more work the profession was called upon to do. Under a capitation system the scientific treatment of disease would be a practical impossibility. A system such as he suggested would enable the doctor to limit his work in accordance with his strength and capacities. In addition, payment per attendance would maintain the independence and develop the individuality of the general practitioner, maintain and enhance the status of the profession, advance medical science and art, and secure the best medical attendance for the patient. It was the only method applicable to the charging of extras; its adoption would largely obviate the difficulty as to a wage-limit, and with partial payment of fees by the patients themselves the system would be the best safeguard against malingering. On the other hand, the submission of the medical profession to a contract capitation system meant that the profession shouldered the insurance risks, it continued the same charitable mode of attendance upon those who were no longer entitled thereto, and it was deprived wholesale of private patients. Under capitation a medical man would almost certainly be overworked and underpaid; this meant bad work, which was far more costly to the insurance fund, besides having a deteriorating effect upon the doctors themselves and injuring the lives and happiness of the patients. With regard to the statement that the system of payment for work done would lead to unnecessary attendances Dr. Cooper remarked that while it was easy to make a gratuitous statement of this kind it was another thing to substantiate it. In the National Deposit Friendly Society, where such a system existed, there were fewer days of sickness amongst its members than in any other Friendly Society. He regarded a system of payment per attendance as the obvious way out of the present deadlock between the Government and the medical profession. The Government would never agree to what the profession considered a fair capitation fee, but could not for shame offer less than 2*s.* 6*d.* or 2*s.* per visit for consultation on a tariff basis.

Dr. ALEXANDER STEWART (Pendleton, Lancs.), in a paper in favour of a capitation system, urged that objectors to contract work were inclined to exaggerate the claims insured persons would make upon the doctor. It was difficult to gauge the amount of work in medical benefit that each insured person would require of the medical man, but he was able to give an estimate based upon 30 years' experience as medical officer to a provident dispensary with the added experience of colleagues during the same period. There was a record of 248,056 visits to the members of the dispensary at their homes, and of 230,219 consultations at the dispensary—a total of 478,275. The members had free access to the doctor at certain hours and received the domiciliary attendance they needed. The average number of interviews each member had with the doctor in every year was 4·7. Members were of all classes, of all ages, and of all conditions of health; except for the children and the excess of women probably they would fairly well represent the persons who would be entitled to medical benefit under the Act. The Association had asked for a capitation fee of 8*s.* 6*d.* per annum for ordinary medical attendance. At the rate of 4·7 attendances per person this would mean a fee of 1*s.* 9¼*d.* per attendance; a fee of 2*s.* 6*d.* on a capitation basis would equal 12*s.* for this number of attendances. The following additional points were germane to a true estimate of the work the doctors would have to do: (1) Persons who had free access to the doctor came to him oftener than if they had to pay a fee each time; (2) the Insurance Act provided medical benefits for young and old, for sick and healthy alike; the Friendly Societies admitted only selected lives; (3) the Act provided medical attendance for women, who needed the doctor more than men; (4) free choice of doctor would increase medical work; people would go to the family doctor more often than they would to the club doctor; (5) compared with private practice, much additional work would be given (*a*) by people who now resorted to medical charities; (*b*) by those who at present suffered and obtained no medical benefit because of the cost—their name was legion; and (*c*) by the users of quack medicines—the Act would help to kill this nefarious traffic. Sir William Plender's report showed that in private practice the average attendance (visits and surgery work) for each person of the community was less than 1¼ per annum. With free access to the doctor people appeared to come three times as often. For this work the capitation fee of 8*s.* 6*d.* was modest. It had been argued that 1000 members would each see the doctor a score or more times a year. This was purely imaginary, having regard to his provident dispensary experience. Dr. Stewart discussed the

various arguments for and against the two methods of payment, and remarked that a fatal objection to the payment per attendance system was that under it the profession would thrive on sickness; the more illness the more work for the doctors and the more pay. It would not be a healthy position. The intention of the Act was to promote national health; to do that effectively the doctor must have some relationship with the patient beyond the fee for every consultation and visit. The doctor's efforts at preventive work were hindered by the fee for each visit. With a capitation fee the question of payment was out of sight, the doctor and patient were allies in fighting disease. In his experience no one objected to contract work, provided the fee was adequate, and of course the profession must refuse to work the Act unless under a system of capitation an adequate fee was fixed.

Mr. C. E. S. FLEMMING (Bradford-on-Avon) also read a paper in favour of a capitation system. He urged that there was no satisfactory means of estimating the actual value of work done, and that medical fees had very little real relation to the mental effort made, the skill used, or the actual result achieved. For the same effort or skill the patient might pay any fee from 6*d.* to £1 1*s.* or more. Under a capitation system the medical profession would be the insurers, and it would be worth its while to see that those insured were so looked after that they did not fall ill, or, if they did, that they recovered as quickly as possible. There would no longer be a feeling of antagonism between preventive and curative medicine.

Mr. J. E. O'SULLIVAN (Liverpool), in the course of the discussion, stated his objections to cheap contract practice and declared himself opposed to a capitation system. Under payment for work done the medical man was free to terminate his contract at any time, and his independence in this respect made for the better relations of patient and doctor. A large number of contract patients, not having a very clear appreciation of the principles of insurance, came to the doctor with the object of getting something for their money; to restrain them in this respect they should pay a part of the fee from their own pockets.

Dr. LL. MORGAN (Liverpool) briefly described a scheme for a public medical service under which the contributors would be divided into classes according to their earnings, those who were better off contributing on a graduated scale in order to supplement the 6*s.* per annum received from the Government.

Dr. H. D. LEDWARD (Letchworth) also propounded a scheme introducing the principle of limitation of attendance, based on the Epsom scheme of Dr. E. G. C. Daniel. He was strongly in favour of members having an interest in checking attendances. He thought a payment per attendance system would involve the inspection of accounts by Government inspectors, which would be unsatisfactory and greatly resented.

Dr. T. BUSHBY (Liverpool) thought Dr. Morgan's scheme should classify the insured, not only as regards income but also according to trades, but he agreed with the suggestion that the insured should contribute directly in proportion to their means. He pointed out that the profession could no longer undertake treatment of insured persons at low rates in the hope of attending their wives and families at higher ones, because in 1915 the Government intended to include the wives and families in the insurance scheme.

Mr. W. DRAPER (Gerrard's Cross) alluded to competition of hospitals and infirmaries in keeping down the scale of fees obtainable by the general practitioner.

Dr. L. J. PICTON (Crewe) suggested that the family and not the head of the family should be taken as a unit.

Dr. A. G. GULLAN (Liverpool) thought a payment per attendance system would be more satisfactory, but so long as the fee was adequate it was not a matter of great consequence what basis was adopted.

Dr. ELEANOR BOND (Bournemouth) thought that if the fee was adequate capitation was the more feasible method.

After the readers of the papers had replied, a vote of thanks to the President of the section was heartily accorded on the proposition of Dr. GULLAN, seconded by Dr. J. H. TAYLOR (Salford).

DISEASES OF CHILDREN (INCLUDING ORTHOPÆDICS).

THURSDAY, JULY 25TH.

President, Mr. ROBERT JONES (Liverpool).

Mr. E. M. CORNER (London), Vice-President, occupied the chair.

Dr. ROBERT HUTCHISON (London) opened a discussion on

The Dyspepsias of Childhood after the Period of Infancy.

Dyspepsia in childhood, he said, was necessarily a wide and ill-defined subject, but it might be subdivided into three classes: (1) gastric, (2) intestinal, and (3) hepatic dyspepsia. Clinically, combinations of these varieties might be met with. With regard to gastric dyspepsia, organic disease was rare in childhood, apart from acute gastritis. Chronic gastritis was frequently diagnosed, but it was probable that careful test meal investigation would show that many of the cases were due to some form of functional disorder. Such functional disorders might be of secretion, of motility, or of sensibility. The absence of test meal evidence made it unwise to dogmatise about secretory disorders; hyperchlorhydria might be common, as in infancy and adult life, but it was difficult to diagnose; achylia was rare. Disorder of motility was the commonest cause, and might be inferred in those cases in which a splash could be elicited over the stomach some hours after a meal. The patients were usually of poor physique, badly nourished, and suffered from abdominal pains and mental depression. The condition was commonly spoken of as "mucous disease," and X ray investigation should be a profitable line of research. Hyperæsthesia was the most probable disorder of sensibility, and while it might account for some of the cases of pain referred to the upper abdomen it was extremely rare. Intestinal dyspepsia was characterised by flatulence, colic, and derangement of the bowels, and comprised cases of fever of intestinal origin; the majority of cases of dyspepsia in childhood came under this head. The pathology was obscure, but there were three possible causes: (1) defect of certain digestive ferments; (2) the presence of an abnormal intestinal flora; (3) a diet containing excess of one class of nutritive constituent—probably carbohydrate. The great benefit obtained frequently in these cases by rigid limitation of carbohydrates strongly favoured this view. Hepatic dyspepsia might be inferred when dyspepsia was accompanied by a deficiency of colouring matter in the stools. These children seemed especially liable to suffer from periodic vomiting, migraine, and bilious attacks. The condition might be due to a functional arrest of bile secretion, but the pallor, as in "cœliac disease," might be due to diminished absorption of fat concealing the presence of bile pigment. The benefit obtained in these cases by limitation of fat and carbohydrate in the diet would suggest that the disorder might be due to overloading of the hepatic cells with fat and glycogen. In the etiology of dyspepsia in childhood congenital predisposition played a large part. Children of neurotic families had difficulty in digesting milk in infancy, and in later childhood continued to exhibit dyspepsia in various forms. Many had the narrow subcostal angle, feeble muscular development, &c., characteristic of Stiller's "morbus asthenicus." In later life they tended to be neurasthenics and nervous dyspeptics. Dr. Hutchison had not been able to trace any connexion between dental caries and dyspepsia. Defective mastication and bolting the food was, however, undoubtedly a frequent cause. Of dietetic causes excessive use of carbohydrates was the chief; such a diet was bulky and fermentable, and made great demands on the digestive ferments; it might also be deficient in proteins. Physical and mental strain, over-anxiety about lessons, &c., also played a part in sapping the strength of children and promoting dyspepsia. In the matter of treatment it was important, first, to regulate the whole environment of the child—the hours of work, of play, and of sleep. Change of air was often a great advantage. Dietetic rules were secondary to general hygienic measures; proper regulation of meals and education in mastication were required, and the carbohydrates must not be over-represented in the diet. Drug treatment was of minor importance; aperients and iron, malt and cod-liver oil, were of most advantage.

Dr. H. R. HUTTON (Manchester) said that Dr. Hutchison had presented the subject in a large and comprehensive way,

and he proposed to touch on only a few points. Irregular and imperfect contraction of the stomach, as revealed by X ray examination after bismuth meals, was certainly present in some cases of dyspepsia associated with pain and tendency to vomit. In other cases the pain appeared due to irregular circulation through the intestine consequent on binding down of the coils of intestine by adhesions. Dental caries, by leading to deficient mastication, and hurrying children through their meals, acted in the same way and led to dyspepsia. Rest before meals and variety in diet were important points in treatment.

Dr. C. PAGET LAPAGE (Manchester) agreed with the other speakers that congenital pyloric stenosis in infancy rarely caused symptoms of dyspepsia in later years. Diseases such as rheumatism and tuberculosis and also chronic underfeeding led to general lowering of the bodily functions and were a frequent cause of atonic dyspepsia. Treatment of the general condition led to a rapid improvement in the digestive powers. Many cases of dyspepsia were probably due to tuberculous affection of the mesenteric glands, often unsuspected and undiagnosed, and cleared up when the disease was overcome. In some cases which at first suggested periodic vomiting the attacks become more frequent, and ultimately the underlying tuberculous condition became apparent. Carbohydrate food had a bad influence in producing dental caries and also led to bolting the food: foods should be prescribed that required mastication, so that the whole range of the digestive tract might acquire proficiency through exercise.

Dr. F. C. EVE (Hull) considered that the atony of the stomach was often part of a pot-belly condition, and emphasised the need of horizontal rest and abdominal massage. Many cases of dyspepsia were merely symptomatic of other diseases, such as phthisis, glandular tubercle, worms, constipation and nervous debility, and diagnosis was in consequence uncertain; it was important to look for an underlying cause.

Dr. JOHN HADDON (Hawick) emphasised the importance of food, fresh air, and exercise in the treatment of dyspepsia.

Dr. C. RIVIERE (London) drew attention to a type of children who suffer from the age of infancy with lack of appetite. They were thin, pale, nervous, and restless, and had no definite dyspeptic symptoms other than want of appetite. He asked whether Dr. Hutchison would consider these cases to be of neurasthenic origin and advise overfeeding, or to be due to an intestinal catarrh calling for limitation of food. As a clinical type they were of importance.

Mr. CORNER considered that overfeeding led to multiplication of micro-organisms, and these congregated particularly in the cæcum. He would suggest that appendicitis was a necessary corollary to such stasis, and that removal of the appendix would be of great benefit in many cases of dyspepsia in children.

Dr. R. B. MCVITTIE (Dublin) stated that rest in bed had a very beneficial influence on these dyspeptic cases, and suggested that this was the explanation of the benefit that removal of an appendix not obviously diseased might lead to.

Dr. F. CLAYTON (Leamington) and Dr. W. E. HUME (Newcastle) also spoke.

Dr. HUTCHISON, in replying, put in a strong plea for logic and sanity in the discussion. The causes of dyspepsia were manifold, and not all cases could be attributed to either appendicitis, tuberculosis, or error in diet. He hoped that X ray examinations on the lines Dr. Hutton had carried out would throw much light on dyspepsia due to lack of motility. The cure of dyspepsia in children was usually easy if the practitioner had a free hand. The use of laxatives and a change of air and life were the chief items in treatment.

Mr. A. H. TUBBY (London) read a paper on

A Method of Operating for Webbed Fingers.

The cases could be divided into four classes: (1) those in which union was by skin only; (2) by skin and fibrous tissue; (3) the lattice form in which the fingers were separated proximally, but united distally; and (4) where the bones were fused together. Difficulties arose in those cases where the union was by soft tissues as well as skin, and in those where some of the bones were joined. The number of operations that had been devised for the cure of this condition showed the difficulty of getting good results; most of them failed to fulfil all the postulates of success, namely—(1) the formation of a large permanent opening at the base of the cleft (this opening must be lined throughout with epithelium, and be in the position and have the natural inclination of the cleft); (2) the fissure so formed must be stationary; (3) when the fistula was completely healed the web was dealt with in such a way that the lateral raw surfaces became completely covered with skin; (4) absolute asepsis must be maintained from first to last; and (5) the fingers when healed must be watched and if necessary splinted to prevent lateral deviation; they should be massaged and moved daily. The operation planned by the author and practised to carry out these requirements was described as follows: Two triangular flaps of skin are cut in the situation of the normal interdigital cleft; one on the palmar aspect with the base towards the tips of the fingers, the other on the dorsal aspect with its base in the reverse direction and further from the fingers, to obtain the natural slope of the interdigital cleft. The flaps are large and generous. The soft tissues at the base of the web are cut out till a circular opening one-third of an inch in diameter is made. The flaps are drawn through the foramen and carefully adjusted with their epithelial edges opposed and sutured in position. To prevent contraction the foramen is kept distended by a glass rod; if not fixed firmly this would tend to move about and irritate the parts, and further it had been found to work down gradually towards the tips of the fingers. To prevent this Mr. Tubby has devised an apparatus which will fix the rod: the apparatus, which can be sterilised, consists of a metal wristlet carrying two arms which hold the glass rod in place by means of two screws; the palmar arm is rather longer than the other, so that the glass rod maintains the obliquity of the interdigital cleft. The rod is kept in for a week after the stitches have been removed, when the fistula should be dry and lined with skin. When the first operation is successful flaps are turned from the dorsal aspect of one finger and the palmar aspect of the other by Didot's method, and the completion of the separation is carried out. Complete apposition must be obtained and no raw surfaces left either on the fingers or in the cleft; tension on the flaps should be avoided. A dressing of sterilised tinfoil under the gauze prevents irritation and aids rapid healing. The hand and arm are fixed in splints for three weeks; the wound should be found dry, and the result satisfactory. Massage and movement are required daily, and lateral deviation is overcome by malleable finger splints if necessary. (Full details of the operation and figures will be found in the writer's book on "Deformities, including Diseases of Joints and Bones.")

Mr. CORNER congratulated Mr. Tubby on an operation well designed to remedy satisfactorily these difficult cases.

OPHTHALMOLOGY.

THURSDAY, JULY 25TH.

President, Mr. EDGAR ATHELSTANE BROWNE (Liverpool).

A discussion on the use of

Tuberculin in Diseases of the Eye

was opened by Dr. GEORGE MACKAY (Edinburgh), who said that he proposed first to examine the status of tuberculin as an aid to the diagnosis of ocular tuberculosis; to consider the preparation and method of application; and, further, the importance of making a differential diagnosis between the human, bovine, and avian varieties, and the means at their disposal for discriminating between these. The subcutaneous injection of small doses of the original tuberculin he thought highly of; Calmette's ophthalmo-reaction had a most restricted applicability, owing to its danger; von Pirquet's reaction was safe, simple, but only moderately reliable; whilst Moro's was much less reliable. He did not think it possible to distinguish between human and bovine tubercle by these means. He next dealt with the values of the opsonic index, or phagocytic index, as he preferred to call the reaction. The method was undoubtedly difficult and tedious, the personal equation entering largely into the results obtained, but these examinations had taught them much, and they were still of value in cases of difficulty in diagnosis. As regarded tuberculin in treatment, the safest preparation appeared to be Koch's New Tuberculin T.R., whether human or bovine; it caused the least violent reaction. Where more powerful effects were desired the bacillary

emulsion (B.E.) might be employed. They had sufficient evidence to show that if initial doses were small the increase was gradually made, and the inoculations were not too frequent, the clinical condition and the absence of local reaction might be taken as guides without repeated observations on the opsonic index. No hard-and-fast rules of dosage could be laid down, the personal reaction of each patient had to be considered, and they must bear in mind that their aim was not so much to flood the patient with massive doses of antibacterial material, but rather to stimulate his own tissues to produce this material for himself. The speaker then proceeded to consider illustrative cases of tuberculous disease and his experiences in treating them; this part of the paper was illustrated by a series of beautiful water-colour drawings shown by the epidiascope. Phlyctenular conjunctivitis was often associated with tuberculous lesions of glands and bones, but he was diffident in assuming a phlyctenule was a pure tuberculous lesion. Some of them he had evidence to show were definitely staphylococcic lesions. Some, on the other hand, appeared to be due to mixed infections of tubercle with some variety of coccus, and this was particularly the case in patients who were liable to a series of ocular lesions of slightly different order. Considering the deeper affections, interstitial and punctate keratitis, he showed that certainly some of these cases were due to tuberculous manifestations, the diagnosis and the treatment on the lines described had been of the utmost value, and it was a distinct warning not too hastily to assume that an interstitial lesion was syphilitic. Other cases again reacted to both tuberculous and syphilitic tests, so that there was doubtless the double diathesis. He believed that in tuberculin they had a valuable remedy, if judiciously employed, both for diagnosis and for treatment.

Dr. L. C. PEEL RITCHIE (Edinburgh) dealt with the methods of blood examination employed in the investigation of cases particularly referred to by Dr. Mackay. First, they had to remember that while the blood might give evidence of the presence of some particular organism infecting the system, that in itself did not necessarily furnish the cause of the eye infection. Further, there was the possibility of more than one variety of infecting agent being present. The best evidence could be obtained in cases in which the eye was apparently the sole seat of infection; in many cases there were other lesions which complicated matters. At first they were compelled to make a large number of blood examinations for a variety of organisms, but with experience the range of the examination became limited, and latterly inoculation tests and treatment had been carried out on a number of patients without any examination of the blood. After detailing his methods of blood examination he went on to show that the differentiation between the various types of tubercle bacillus was of high practical importance; in certain types of cases the bovine type of infection was found to be especially common, and evidence had been obtained that treatment of such cases with the human type of tuberculin was ineffective. As regarded the methods of inoculation treatment adopted with tuberculin and other vaccines, their object was to avoid objectionable reactions, to permit of the continuance of the treatment over long periods, and to make it suitable for outdoor patients. The general principle was to keep the patient constantly under the influence of small doses of fairly uniform amount, but tending to gradual increase, never to diminish the dose, to avoid hypersensibility by giving the earlier doses at short intervals, while later, as the conditions tended to come under control, to increase the intervals and also the dose.

Dr. A. HILL GRIFFITHS (Manchester) gave in illustration of the successful use of diagnosic methods and treatment with tuberculin records of two recent cases, the one a healthy adult man suffering from tuberculous conjunctivitis, and the other a boy with multiple tuberculous lesions; injections with tuberculin T.R. at intervals of 14 days had been most successful.

Dr. D. LOUIS DOR (Lyons) said that no doubt some remembered the enthusiasm of the whole assembly when in 1890 at the International Congress, Berlin, Koch announced that he had found a remedy for tuberculosis which he called tuberculin. From then till 1893 nearly all physicians had tried it, but unhappily it was proved that the remedy was very dangerous and that in some cases the disease of the patients was aggravated by its use. Lately Dr. Dor had treated a great number of patients, 80 in four years. He considered that in a great number of cases interstitial keratitis with a negative Wassermann reaction, phlyctenular conjunctivitis, chronic scleritis, quiet iritis, and optic neuritis, were due to tubercle, and in these the best thing was to try the action of tuberculin as a diagnostic agent. In the majority of cases local and general reactions resulted, but many were atypical cases. He used very small doses (100,000th part of a milligramme) and every third day injected larger doses so long as no reaction resulted. As soon as a local or general reaction was noted he injected the same dose until it produced no reaction. He never neglected local and general treatment. So far he had had no bad results, and there was definite reduction of the lesions. The action was slow, and quite unlike the rapid action of salvarsan and iodides. It was absolutely necessary to treat a number of cases before coming to a definite conclusion, and the duration of a course must never be less than two months; even after three months with a seeming cure he had had relapses necessitating a second course. For the majority of cases he preferred the German bacillary emulsion (B.E.), which was a culture of bacilli crushed and killed.

Mr. T. HARRISON BUTLER (Coventry) said that Calmette's reaction was dangerous and useless. He had had violent reactions, with resulting interstitial keratitis and corneal ulcers in previously normal eyes. Von Pirquet's reaction was positive in 90 per cent. of all adults, and so valueless, though for children it had some use. Injection of old tuberculin was the only method of real value. A local reaction after an injection was proof of ocular tuberculosis. He used 0·001 c.c., followed up at an interval of a few days by twice, and then four times, this dose. He had had a case which failed to react to human but did react to bovine tuberculin. In treatment he found tuberculin T.R. best. It was necessary to continue the treatment even up to a year. He questioned whether any good was obtained by increasing the dose. He had had excellent results, especially in diseases of the uvea, and in phlyctenular conjunctivitis which he believed to be of tuberculous association. Scleritis and sclerosing keratitis were frequently tuberculous and often susceptible to tuberculin therapy.

Dr. W. B. MARPLES (New York) said he was much interested in the cases of interstitial keratitis of tuberculous origin. In his own experience, the majority of cases of this disorder gave a positive Wassermann reaction, and the remaining cases did not give a positive tuberculin reaction. He had had several cases of obsolescent tuberculous choroiditis with a focus of recrudescence which gave positive tuberculin reactions. In some cases of recent tuberculous choroiditis the "mutton-fat" exudation on the back of the cornea had quickly disappeared under treatment, but the opacities in the media and the choroiditis got well only slowly. In tuberculous iritis where tuberculin had been given as a diagnostic aid three times at intervals of four days no positive reaction except a slight rise of temperature was noted, but the nodules had gradually disappeared. He agreed that small, gradually increasing doses were necessary, and that the treatment should be continued for several months or a year.

Mr. N. BISHOP HARMAN (London) raised the point as to whether they were justified with their present state of knowledge in using tuberculin by "rule-of-thumb" methods—that was, without a preliminary exhaustive examination of the blood and the repetition of these tests during each stage of the treatment. He thought they were justified in doing so. The cutaneous tests for tubercle were at best dubious, and the personal equation in making the blood tests was so great that in any event they were left mainly to their own clinical acumen. He had found the use of tuberculin in selected cases, given after the manner detailed by Dr. Peel Ritchie, safe and satisfactory. He relied on three guiding signs: the appearance of the local lesion; the temperature of the patient taken regularly; and lastly, the feeling of fitness on the part of the patient. If a patient felt out of sorts no injection was given that day. He raised the most emphatic protest against the assumption on the part of some that phlyctenular conjunctivitis was always of tuberculous or para-tuberculous origin. All the evidence tended to show that the greater number of the cases—which formed a large part of those seen at children's hospitals—were comparatively innocuous lesions due to local causes. He had examined the case papers at the Belgrave Hospital for 10 years with the following results: of

all the cases one-half were cured in one week, a further quarter in the fortnight, only 5 per cent. dragged on for months, and these were the cases of phlyctenular keratitis occurring in children who were justly called "strumous" at sight. Next the cure was obtained by the simplest means, yellow cintment; in some cases he had experimented with plain castor oil with equally satisfactory results. Further, the cases had an "age-peak," the maximum occurring at six years of age, a fact that had no relation to tubercle, but a very definite one to the decay of the first dentition and the eruption of the second. Lastly, the lesions had a "seat of election," one that had a specific relation to the distribution of the fifth nerve to the teeth. These things led him to conclude that the common phlyctenular conjunctivitis of children was not tuberculous in any real sense; it was a herpetiform eruption due to irritation of collateral branches of the fifth nerve. In a residuum of cases there were genuine tuberculous bases, particularly in those lesions which occurred in later years of life; and there were the pustular lesions and the combined episcleral and corneal lesions, which were often, but probably erroneously, called "phlyctenules." He felt that to assign a simple lesion to a grave cause and then claim cure for it by vaccine treatment when it was more easily cured by the simplest therapeutic measures was to discredit vaccine treatment.

A paper on

The Treatment of Word-blindness, Acquired and Congenital,

was read by Dr. JAMES HINSHELWOOD (Glasgow), who said that the old idea was that nothing could be done for the education of persons suffering from these serious defects. Much, however, could be done if the treatment were conducted on proper lines, and he indicated what line, in his experience, was the best to adopt. Pure cases of acquired word-blindness almost always came to the ophthalmic surgeon in the first instance, as it was supposed that the defect lay in the eyes. The lesion, however, was either in the brain, in the angular gyrus itself, or it was due to the interruption of the communicating fibres between it and the ganglia. In right-handed people the lesion was on the left side. He related the case of a man, aged 58 years, who awoke one morning with the power of reading quite lost. He had right lateral homonymous hemianopsia, but no other symptoms were discoverable. He started to re-educate himself, learning letters and words like a child. After six months he was able to recognise the letters of the alphabet, but never learned to read words by sight. He could read only by spelling words out letter by letter and thus stimulating his auditory memory. After a year he gave it up as hopeless; still he had re-acquired the visual memory of the letters and of a few short words. Another patient was a woman, aged 34 years, who had been completely word and letter blind for 14 months; she had right homonymous hemianopsia. A schoolmaster took great interest in her re-education. It was found that the effort of eduction was very great, and could not be continued for more than 10 minutes at a time. Ultimately she learned to read simple Bible texts by spelling out the words. Her progress has been steady but slow from that point of attainment; but now, after an interval of ten years, she could read a newspaper fairly fluently, only occasionally she was compelled to spell words. The third case was that of a girl, aged 14 years, who had right-sided paralysis and loss of speech 18 months before. Previously she had been a good reader. When first seen she was completely letter blind and had right homonymous hemianopsia. Her auditory memory was unaffected. Re-education was started. After learning the alphabet she was allowed to spell out words letter by letter. In four months she had made considerable progress and could recognise any letter and many small words. Longer words she had to spell so as to get the aid of her ear. Two years later she could read as well as ever but the hemianopsia persisted. Age evidently was a very important factor in the ability with which the patients were able to regain their lost powers. The cause in all these cases was cerebral hæmorrhage. In such cases the process of re-education should be delayed until all signs of acute brain symptoms had disappeared. In these cases it could be accomplished only by bringing into play the corresponding centre on the other side of the brain. He argued from these cases of acquired word blindness and the experience of re-education that both in these and in congenital cases neither the old system nor that known as the "look-and-say" method was suitable for all cases. A great deal depended upon the degree of defect in the visual memory, and upon the condition of the auditory memory. When the visual memory was very defective and the auditory good, then the old system would give the best results; but when the auditory was not good the best results might be obtained by the "look-and-say" system. Lastly, personal teaching was necessary in all cases, and a number of short reading lessons during the day was better than one long one, for the brain rapidly became exhausted.

Dr. F. W. EDRIDGE-GREEN (London) quite agreed with the methods suggested for training the memory. He had found that it was of the greatest importance to put as little strain as possible on a weak faculty. It should be remembered that the retina was represented in the cerebrum, so that we might almost speak of a "cerebral retina."

OTOLOGY AND LARYNGOLOGY.

THURSDAY, JULY 25TH.

President, Mr. HUGH EDWARD JONES (Liverpool).

On this day the Otological Section combined with the section of Laryngology under the chairmanship of Dr. J. MIDDLEMASS HUNT (Liverpool) to discuss jointly the

Education of the Specialist in Laryngology and Otology.

In opening the discussion Dr. HOLGER MYGIND (Copenhagen) surveyed the education of the specialist on the continent, where there was no uniform system. Countries, he said, might be divided into three groups: (1) Those (Germany, Austria-Hungary, Scandinavia, Holland, Switzerland, and Roumania) where the universities had chairs of Otology and Laryngology (in this group were 44 such chairs); (2) those (Italy, France, Spain, and Belgium) in which some of the universities (19 in number) possessed such chairs; and (3) those (Russia, Greece, and Portugal) where there was no systematised teaching. This was not, however, the sole expression of the state of education in Europe. The highest standard was undoubtedly reached in Germany, but Austria was not far behind. On the continent it was a rare thing to find a man recognised as a specialist who had not passed some time as an assistant in a special clinic, and a man with a high reputation might remain as assistant for 12 or 14 years. In some countries an assistantship, followed by the publication of a dissertation, qualified him as "privat-docent," a valuable distinction, as it carried with it the right of teaching. Dr. Mygind then discussed the *defects* of the continental system. He considered that the preliminary education of the student at the university should be the first stage of special training. The first fault was a superficiality in the examination of the patient, due to want of time on the part of the teacher. The second was the laying of too great stress upon lectures. Text-books were plentiful now, and detailed instruction in practical work was most required. Thirdly, the course did not end in examination, save in Germany, where it was conducted by surgeons and physicians, and not by specialists. In the final stages the assistants had too scanty training in general work, appointments were often of too short duration, and the great majority of the out-patient departments were overcrowded and experienced assistants too few in number. As a consequence, cases were badly recorded and were treated by too many specialists. The remedies suggested by Dr. Mygind were the following: 1. A more thorough and more individual teaching of the young student, in classes of 10 to 12, with experienced assistants to the professor. 2. Beginners to study every detail, to avoid superficiality, only ordinary cases to be demonstrated at first, as a few cases examined thoroughly taught more than many badly gone over. 3. Compulsory final examination by specialists for every student. 4. Free post-graduate courses supported by the university or the State. 5. No appointment of an assistant to be made without a year and a half as a general assistant (nine months being spent in surgery), the minimum duration of special assistantship to be one year. 6. The provision of enough salaried assistants in proportion to the number of patients. 7. The provision of wards attached to each clinic. Dr. Mygind also discussed the connexion between laryngology and otology which, in

his opinion, could never be entirely separated; the question was, to a great extent, a practical one.

Dr. P. WATSON-WILLIAMS (Clifton) referred to the valuable articles which had appeared in the *Journal of Laryngology*, and confined himself to the position in Great Britain and Ireland. There were at least 54 British hospitals with 696 beds for throat, nose, and ear cases, proving that laryngology and otology were now generally conceded to be special departments. The labours of specialists had yielded abundant fruit and fully justified their existence. He complained that most British special clinics were merely out-patient departments and beds were grudgingly conceded, whilst cases were not always referred to the specialist as they should be. He formulated the wants of laryngology and otology as (1) their due recognition in the students' curriculum; (2) the more complete organisation and equipment of the special departments in many of our teaching clinics; and (3) systematic post-graduate training of practitioners who desired to become specialists, and a distinctive degree or qualifications for those who had rendered themselves worthy of such distinction. The want of proper training of students was, save in a few isolated instances, a grave reflection upon the bodies responsible for it. Dr. Watson-Williams then gave his views as to the training of specialists, and suggested a course and details of examination. He criticised the method of the Royal College of Surgeons of Edinburgh in its Fellowship Examination, and compared it with that of the University of London, which granted an M.S. in odontology.

Dr. H. S. BIRKETT (Montreal) considered it time for specialists to give an expression of opinion upon this matter, and they must realise the danger of building too rapidly a complicated structure with ill-seasoned materials. He proposed to deal with the conditions existing in Canada and the United States. In the former the question of education in laryngology and otology was not considered because the amount of material did not permit of it. In Montreal there was a post-graduate course of two months in which only rudiments were taught, so that the physician could recognise what was pathological and what normal. Canada was not yet able to undertake the training of specialists. In the United States, St. John Roosa initiated post-graduate teaching in New York 30 years ago, and now such institutions existed in every town of any size. The best post-graduate teaching of otology and laryngology was in the largest centres; it began with physiological and pathological studies in the laboratory, followed by clinical instruction in the out-patient departments, and concluding with operations on the cadaver. As the student progressed he became a clinical assistant, doing minor operations and assisting at the major ones. Resident posts followed in some institutions. Courses lasted from 6 to 12 months, and concluded with a severe examination and certificate. Evidently the ideal course was not yet reached. In McGill University the fourth year student was taught only what was normal by anatomical studies, tests of normal hearing, and the use of instruments in perfectly normal conditions. In the fifth year common pathological conditions were demonstrated in patients and specimens. The two years' work was done in small groups of six men each. A clinical examination by specialists was compulsory at the end of the fourth, a clinical and written one at the end of the fifth year. Such courses met the needs of the general practitioner very well. In Canada the subjects were compulsory in all examinations for the licence to practise. The preparation of specialists was then discussed. The study should be gradual, should give depth and background, and higher ideals should be stimulated. The plan sketched out could be followed only by the few. There was, and would be, a large number who would enter special work by the shortest route and quickest method; they must be feared and suffered, but could be prevented only by legislation.

Mr. HUGH E. JONES (Liverpool) then took the chair during the discussion.

Mr. MARK HOVELL (London) supported Dr. Birkett in making otology and laryngology subjects of examination and considered them inseparable.

Mr. F. H. WESTMACOTT (Manchester) thought the requirements for all the special branches needed careful consideration to avoid overburdening the student. The student-specialist should have a year's hospital appointment to learn technique and should be attached to his chief for private work as well. Opportunities for special grounding in anatomy and physiology, clinical examination, and the use of instruments did not exist in the United Kingdom.

Dr. JOBSON HORNE (London) deprecated going abroad for teaching. He insisted upon a sound groundwork of anatomy and physiology and the combating of the idea that "anybody could do our work."

Dr. R. H. WOODS (Dublin) agreed with what had been said, and suggested the early training of eyes and fingers in the school workshop.

Mr. W. PERMEWAN (Liverpool) realised from Dr. Mygind how far they were behind other countries. He alluded to the unsatisfactory position of specialists in general hospitals.

Sir STCLAIR THOMSON (London) thought teachers should express their views. Dr. Watson-Williams's suggestions were rather severe. In this country things went slowly. They must first be physicians and surgeons and show it in their work and in societies. They should insist on the dignity of their work. Otology and laryngology should be compulsory for the ordinary pass examination.

Mr. GEORGE JACKSON (Plymouth) advised approaching the General Medical Council and deprecated multiplying degrees.

Dr. DAN MCKENZIE (London) thought the subject scarcely ripe for discussion. It fell under two heads, the education of the student and the education of the specialist.

Dr. J. WALKER DOWNIE (Glasgow) asked if laryngology and otology had not recently been made compulsory by the General Medical Council.

Dr. MIDDLEMASS HUNT complained of the want of free post-graduate instruction. A man ought to be able to spend two or three years working at a specialty and be able also to live. He suggested the foundation of scholarships or fellowships. What was the good of asking the State to protect the specialist when it did not protect against the quack? Public opinion required educating.

Mr. H. TILLEY (London) agreed with Sir StClair Thomson as to the raising of the quality of the work.

Mr. E. B. WAGGETT (London) thought that as a rule the specialist was made by natural selection, and that seven-tenths of their cases ought to be diagnosed by the general practitioner.

Mr. MACLEOD YEARSLEY (London) said that the matter was one of evolution, and before discussing the education of the specialist it was necessary to educate the general practitioner. Otology and laryngology should be made compulsory and find places in the examination. Their broad principles should be taught when the student mind was plastic, and this was better than post-graduate courses.

Dr. A. WYLIE (London) said the subjects were already compulsory. British teaching was superior to continental. What was wanted were more post-mortem examinations.

The openers of the discussion then replied briefly, Dr. WATSON-WILLIAMS pointing out that unless otology and laryngology were put in the qualifying examinations it was useless to make them compulsory.

OTOLOGY.

FRIDAY, JULY 26TH.

President, Mr. HUGH E. JONES (Liverpool).

Dr. J. KERR LOVE (Glasgow) read a paper on

The Prevention of Deafness in Non-suppurative Cases.

He said that, as 10,000 children died in England alone every year of meningitis, he thought that for the purposes of study and treatment meningitis of every kind occurring in children should be compulsorily notifiable. With regard to syphilis, he thought deafness due to the congenital form of the disease was often proof of a dying or expiring poison, and that it was the exception to find its presence proved by the Wassermann reaction. He had, however, been able to ascertain its presence by that reaction. On the other hand, he had nearly always found that recent deafness and keratitis due to congenital syphilis could be demonstrated by the Wassermann test. For the study of true hereditary deafness he thought that an institution was required in this country like the American Eugenics Record Office. He did not think the prevention of the marriage of the deaf or the sterilisation of the deaf was practicable, because the hearing members of deaf fraternities would have to be dealt with similarly, but he thought special education should be given to the hereditarily deaf and to their relatives during the later school

years of the former, so as to show them the risk of marriage and of intermarriage.

Professor MYGIND (Copenhagen) said that otosclerosis was rarely syphilitic. There was no remedy for it, but it was often connected with chronic catarrhal disease of the middle ear, and the treatment of the latter and ventilation of the middle ear did much good. He agreed that adenoids were hereditary. A diagnosis of cerebro-spinal meningitis was often not made, but he thought it a frequent cause of deaf-mutism. Pilocarpine was the best treatment and certainly improved the deafness. To help in the prevention of deafness in connexion with fevers aurists should be appointed to fever hospitals.

Mr. G. J. JENKINS (London) pointed out that heredity skipped generations, and quoted otosclerosis as an example.

Mr. E. M. STOCKDALE (Liverpool) asked as to the treatment of syphilitic cases, and considered syphilis had no connexion with otosclerosis.

Mr. W. M. MOLLISON (London) thought adenoids were not hereditary, but mouth-breathing might be imitative from parents, and Professor MYGIND thought this a proof of heredity.

The PRESIDENT thought adenoids were hereditary, but had to confess that it seemed every child had them. He considered the question of degeneracy as a cause of deafness. He suggested the making of a recommendation to the Council as to the appointment of otologists to fever hospitals.

Professor MYGIND supported this suggestion from practical experience in Denmark.

Dr. KERR LOVE replied, and the following resolution was passed for submission to the Council:—

That as exanthemata very often produce diseases of the ear to the detriment of hearing, and often lead to complications fatal to the patient, the appointment of otologists to fever hospitals was recommended.

Mr. JENKINS then read a paper on

The Indications for Schwartze's Operation.

He said that this operation was originally performed to allow of free drainage of the antrum and mastoid air cells in acute mastoiditis, but though the success of the operation depended largely on this free drainage, yet in some cases the incidental removal of seriously damaged tissue probably was very important in the attaining of a permanent good result. It was because of this incidental effect, which was now regarded as so important, that objection should be raised to describing the operation as an antrotomy. Recognising that permanently damaged tissue might be removed from the mastoid, the mastoid antrum, and posterior parts of the attic by the Schwartze or incomplete post-aural operation, it might be understood that this procedure could be a successful treatment of many cases of subacute or chronic septic affections of the middle ear tract, when the auditory apparatus had not been seriously damaged. It was a useful operation in the treatment of threatening fistula of the attic or antrum, in some cases of established fistula of the attic or antrum, and in those cases of chronic otorrhœa in which it was possible to recognise clinically that there had been permanent damage in the above regions.

Dr. KERR LOVE said it was sometimes difficult to know what to do, but Schwartze's operation was harmless, and one could proceed later to the radical method.

Mr. STOCKDALE thought profuse discharge was an indication for operation.

Mr. MOLLISON thought Mr. Jenkins's first class was very rare, and quoted two cases in children. He did not think transillumination was of much value.

The PRESIDENT commented on the paper and Mr. JENKINS briefly replied.

TROPICAL MEDICINE.

THURSDAY, JULY 25TH.

President, Professor JOHN L. TODD (Montreal).

The first paper, by Dr. ALDO CASTELLANI (Ceylon), read by the PRESIDENT in the absence of the author, was

A Note on the Importance of Hyphomycetes and other Fungi in Tropical Pathology.

Dr. Castellani said that the study of bacteria had given great results in medicine, and he suggested that a similar study of fungi would show that they were in all probability the cause of a number of diseases not suspected at present to arise from that source. He had himself met with cases of illness in the tropics undoubtedly originating in this way, involving the nervous system and the respiratory tract, as well as the alimentary canal. Affections of the conjunctiva, the nasal cavities and the ear, due to fungi, were not in his experience uncommon. In sprue, the etiology of which was as yet undetermined, he had isolated six different species of fungi, but he admitted that three of these varieties were also found in patients suffering from other kinds of disease and having none of the usual symptoms of sprue. Coolies in Ceylon often suffered from a muco-purulent expectoration combined with deterioration of the general health, and from these instances he had isolated various species of fungi. Due to the same cause were some affections of the genito-urinary system. Dr. Castellani then discussed a number of skin affections, including "Dhobie itch" and various kinds of tinea which could be attributed to fungi. "Dhobie itch," however, was a general term, and included several kinds of skin affections. Attention was drawn to the enormous increase in recent years of the traffic between tropical countries and the facilities which this might be thought of as affording for the carrying about of infection attributed to fungi.

There was no discussion on Dr. Castellani's paper, and the PRESIDENT then introduced a discussion on Leprosy, which was followed by one upon Leishmaniasis.

Professor CHARLES DUVAL, of Tulane University, New Orleans, had sent a paper which was read by the PRESIDENT, entitled,

A Consideration of the Organism Cultivated from the Lesions of Human Leprosy, with Reference to its Etiological Significance.

Professor Duval's paper contained a large amount of technical details which cannot very readily be summarised. In the course of his remarks he mentioned that no fewer than seven different germs had been described as having been isolated from the lesions in leprous patients. No doubt some of these were merely accidental contaminations. At the present time it was recognised that the micro-organism of leprosy was pleomorphous; four different forms of it had been described. Under certain conditions described by Professor Duval some of these forms might be changed in cultivation. The methods he had employed to cultivate B. lepræ were detailed and some account was given of his experiments with animals. He had tried serum tests and agglutination tests, but with little result. In Louisiana, from which most of his leper cases had come, the type of the leprosy organism was "chromogenic," but the non-chromogenic, slow-growing organism also required study, for it was possible, after all, that it might play a rôle in the etiology of the disease.

Discussion on Professor Duval's paper was postponed until the other papers on leprosy had been read.

Professor E. MARCHOUX, of the Pasteur Institute, Paris, sent a contribution, which was read by Dr. B. BLACKLOCK, the secretary of the section, on

The Problem of Leprosy.

Professor Marchoux first alluded to the increased relations between European countries and their colonies in the tropics, and also to the fact that many foreigners from tropical countries, some of them of the poorest class, visited the capitals of Europe for one or another reason, so that there was every opportunity for unrecognised lepers to mix with healthy persons without the slightest restraint. He thought they were not so well equipped as in the olden days for dealing with leprosy, since public opinion did not encourage that strict segregation of lepers that used to be practised. For a long time man had been regarded as the only host of Hansen's bacillus, but some years ago in Odessa a disease in the rat resembling leprosy was discovered. The bacillus of this rat leprosy, he said, multiplied in abundance, causing nodules, and these by exercising pressure on the adjacent tissues ultimately led to various other changes, including loss of hair. The lesions in the rat were chiefly under the skin, but were found also in the lungs, the nervous system, and in the bones. The malady in the rat ran a slow course, the animal generally dying from some secondary infection. Professor Marchoux regarded human and rat leprosy as having a relationship similar to that of human tubercle with the avian variety. Insects appeared never to have a part in the spread of the disease, which he believed was usually transmitted from rat

to rat by the biting of healthy animals by one suffering from the infection. It was possible direct contact might help to transmit the malady, but this had not yet been demonstrated. He suggested that after all leprosy in man and animals might be of more frequent occurrence than was generally recognised.

The next paper was by Dr. H. BAYON, Beit Memorial Research Fellow, of the Lister Institute of Preventive Medicine, London. It was entitled

The Leprosy Cultures of Clegg, Duval, Kedrowsky, Rost, and Williams: a Comparative Experimental Study.

Dr. Bayon said that histological, serological, and clinical evidence led to the belief that the organism of leprosy was a slowly multiplying, very slightly toxic bacterium belonging to the so-called tubercle group. Acid-fast saprophytes were so ubiquitous that the cultivation of these from the lesions in leprous cases did not necessarily prove their relationship to the disease in man, but required further identification in order to establish their true significance. With the exception of Kedrowsky's, no leprosy culture had, so far, been sufficiently identified to enable the statement to be made that its properties and appearances were identical with those of the morphological entity known as Hansen's bacillus. Only Kedrowsky's culture had produced lesions in animals absolutely identical with those found in human beings and in rats. Dr. Bayon's own cultural and animal experiments led him to believe that Kedrowsky's culture was a true leprosy organism, and that his view of the varying morphology of the organism in artificial cultures was correct. All the other cultures appeared to belong to the group of acid-fast chromogenic, rapidly growing saprophytes, such as had been found in butter, milk, dung, tap-water, earth, &c.; their relationship to leprosy had not been clearly demonstrated. Dr. Bayon then showed on the screen a number of lantern slides, some of them illustrating the changes produced by the leprosy bacillus in the tissues of the rat; and also a number of microscopic preparations demonstrating his results.

The discussion was opened by Professor G. DEAN (Aberdeen), who said that he had long interested himself in the subject of leprosy. He had carefully examined the cultures which some time ago Major E. R. Rost, I.M.S., had shown, but in his opinion they were not pure cultures. But as to Dr. Bayon's cultures it was otherwise, for since they produced the specific lesions of leprosy in rats, they must be regarded as true cultures of the leprosy bacillus. Professor Duval's organism he regarded as not having a relationship to B. lepræ, while Kedrowsky's certainly had, for the lesions produced by it in the rat were identical with those caused by spontaneous leprosy. Further experimental work on animals was needed. Serological tests would no doubt assist in solving the problem. The subject was one of wide interest, and he thought it was a good sign that so many investigators were at work upon it at the present time.

Dr. E. P. MINETT (British Guiana) gave some account of the leprosy investigations conducted in British Guiana. He said they had no difficulty now in cultivating B. lepræ in Rost's media, but they had many contaminations. They had also experimented with the bacillus of Beauchamp Williams. They had inoculated monkeys, rats, and guinea-pigs, but as yet without result. He also referred to the treatment of leprosy, which had, however, been hitherto disappointing. His opinion was that anæsthetic leprosy tended to self-cure, "like a fire that burns itself out."

Dr. BAYON, in replying, said that the simple cultivation of an acid-fast organism from a case of leprosy did not prove its relationship to the disease until the culture was shown to produce, when injected into animals, the leprous lesions found in visceral leprosy of man. The work of research on this subject was necessarily very slow, and although the results he had submitted had taken two years to obtain, it would probably take several more years to get absolutely clear results in the matter.

The section then proceeded to consider the very important subject of leishmaniasis, the first paper being contributed by Captain W. S. PATTON, I.M.S. (Madras). It was read by Dr. H. B. FANTHAM (Liverpool), its title being

The Kala-azar Problem.

Captain Patton stated that he had been engaged in investigating this problem for the last seven years. His experiments with lice and fleas failed altogether, and the bed-bug was the only insect in which the kala-azar parasite developed. There were three important points which he wished to emphasise in connexion with his investigations, the first being the necessity for insect technique, which included all the details associated with insect-feeding experiments. The second was the question of the cultivation of the parasite in the test-tube. In his opinion this line of research would never lead to the discovery of the true invertebrate host of the parasite, and it was right that the limitations of this method of investigation should be clearly recognised. The third point was the study of the flagellates of the genus Herpetomonas, which he believed to be the key to the kala-azar problem. Captain Patton stated that he had succeeded in infecting a white rat by inoculating it intraperitoneally with splenic emulsion. He firmly believed that the bed-bug, Cimex rotundatus, was the transmitter and specific invertebrate host of the parasite of Indian kala-azar.

A paper by Dr. R. ROW (Bombay) was read by the Secretary of the section on

Some Experimental Facts re Indian Kala-Azar.

Dr. Row said he had succeeded in infecting a monkey with virus obtained from a human source by means of splenic puncture. The monkey's skin was scarified in several places and the virus applied. The places healed in a few days, but nine weeks later a small nodule developed which, on puncture and the preparation of smears, showed the presence of the kala-azar parasite. The animal remained apparently in good health, but it would be watched for some time to see if the general infection developed. Another monkey was also inoculated and nothing followed until five months later, when nodules became apparent at the site of scarification. When punctured and the juice squeezed out for examination, the parasites, similar to those obtained from the spleen of kala-azar patients, were found. Dr. Row said that it was therefore possible to inoculate virus obtained from a human source into monkeys and by this means to produce in them cutaneous lesions yielding upon examination the Leishman-Donovan bodies. It was not, however, possible to say at present that these lesions would lead to the development of the general infection characteristic of Indian kala-azar.

Dr. FANTHAM read an interesting communication, entitled

Some Insect Flagellates and the Problem of the Transmission of Leishmania.

This paper demonstrated that flagellate protozoa, more especially those belonging to the genus Herpetomonas, might occur in the digestive tracts of blood-sucking insects such as fleas, lice, and mosquitoes, all of which had been suspected of transmitting various species of leishmania. It was obvious that the occurrence of such insect flagellates must complicate the problems connected with the transmission of leishmania. Dr. Fantham then described and discussed the following flagellates: (*a*) Crithidia pulicis, parasitic in the digestive tract of the human flea; (*b*) Herpetomonas in the dog flea (Ctenocephalus canis) recorded independently by Marzocchi in Italy, by Fantham in England, and by Höller in Germany—a similar herpetomonas in Ctenocephalus felis was recorded by Patton in India; (*c*) Herpetomonas pediculi (Fantham, 1912), found in human body lice (Pediculus vestimenti) and in head lice (P. capitis), and its life cycle had been fully described; (*d*) Herpetomonas culicis in Culex pipiens and Culex fatigans, seen by Sir Ronald Ross, Novy, and Patton, and carefully described by the last-named observer; (*e*) Herpetomonas in Stegomyia fasciata and in Phlebotomus of Aleppo, recorded by Wenyon; and lastly, (*f*) Herpetomonas muscæ domesticæ in the gut of house flies. These flagellates mentioned passed through leishmania-like preflagellate stages, while flagellate herpetomonads closely resembled the flagellate stages of leishmania. The possible occurrence and intrusion of such natural flagellates in transmission experiments with leishmania and blood-sucking insects should not on any account be overlooked. Dr. Fantham illustrated his paper by showing a number of interesting lantern slides upon the screen.

Dr. BAYON described some experiments which he had made. He said that on intra-abdominal injection of leishmania cultures into rats and mice it was found that the rounded non-flagellate form withstood disintegration, whilst the herpetomonas forms got taken up by the white cells and

were destroyed. The non-flagellated rounded form appeared to be infective, whilst the flagellate form did not resist phagocytosis.

Dr. H. SEIDELIN (Liverpool) sent a short note, which was read by the Secretary, on Leishmania Tropica from Ear Ulcers in Yucatan. He sent also a number of coloured drawings illustrating the lesions observed.

Professor F. C. MADDEN (Cairo), in discussing the previous papers, mentioned that at one time he had to treat a number of skin lesions in Egyptian patients. An investigation conducted by his colleague, Professor A. R. Ferguson, showed that the sores were the result of leishmania infection. Professor Madden then exhibited a number of photographs of patients suffering from the sores he had described.

Dr. A. BALFOUR (Khartoum) discussed herpetomonads, and referred to some of the points in Dr. Fantham's paper. He suggested that certain of the difficulties mentioned might be obviated if search were made for the infective granules in the blood, since these were present in cases of this kind of protozoal infection.

After a few remarks by the PRESIDENT the section then adjourned.

COMBINED SECTIONS OF GYNÆCOLOGY AND OBSTETRICS AND PATHOLOGY.

THURSDAY, JULY 25TH.

Presidents, Professor HENRY BRIGGS (Liverpool) and Professor I. WALKER HALL (Bristol).

Joint Discussion on "Eclampsia."

Dr. J. W. BALLANTYNE (Edinburgh), in opening the discussion on the Etiology of Eclampsia, said that the subject might be investigated along two distinct paths. In the first place, a study of the preceding or predisposing causes of the disease might be instituted. Secondly, the discussion might be directed along the lines of the mechanism by which the various pathological lesions were brought about. Of the predisposing causes of eclampsia, pregnancy of course held the first place, and the pregnancy was not a normal one. In some way, at present unknown, the "harmonious symbiosis" between the fœtal and maternal organisms was thrown into disorder. Eclampsia was most common during first pregnancies. It was also more frequent in the case of twins and illegitimate births. Locality, atmospheric conditions, especially cold, foggy weather, habitual constipation, or any condition involving an especial strain on the kidneys, had all been cited by different authorities as predisposing factors in the etiology of the disease. Turning to the pathogenesis of eclampsia, Dr. Ballantyne observed that one passed at once into a labyrinth of speculation and could only discuss "the reason of the cause and the wherefore of the why." It became extraordinarily difficult to make a clear statement of fact. It was generally recognised that the disease was essentially a toxæmia, and from the point of view of treatment it was best so to regard it. But what was the source of this toxæmia and what was the organ primarily involved? The speaker referred briefly to the existing theories with regard to the disease, and these were discussed under the headings of (*a*) microbic origin, favoured by the apparent periodical epidemicity of the condition, but having little else to recommend it; (*b*) causes within the maternal organism but outside the fœtus, including: 1. Renal insufficiency, as shown by the occurrence of albuminuria, hæmaturia, casts, and the diminution of urea output. 2. Hepatic lesions. 3. Gastro-intestinal causes—e.g., constipation leading to the formation of toxins. 4. Thyroid or parathyroid inadequacy. The latter theory, in the speaker's opinion, had much to recommend it. It was known, for example, that parathyroidectomy in dogs produced twitching, dyspnœa, and death. Also the excretion of lime salts and the condition of acidosis had been shown to be under the influence of these ductless glands, which were always more active during pregnancy. The symptoms produced by excision of the parathyroids were also much worse if pregnancy was present, but could be checked by the injection of lime salts into the circulation. It was also known that women suffering from thyroid disease were prone to develop eclampsia or tetany. 5. Adrenal disease, frequently associated with cardiac hypertrophy and high tension. 6. Pituitary perversion or inadequacy. 7. Mammary lesions, a theory which had led some authorities to recommend and practise excision of the breasts for eclampsia, and which was based upon the occurrence in cattle of a condition similar to eclampsia in association with disease of the udder. 8. Corpus luteum. It was possible that this body might produce a hormone which adversely influenced the secretion of other glands. (*c*) Causes located within the uterine contents. Here, again, it was possible only to surmise, and various theories had accordingly been brought forward suggesting the placenta, amnion, and other fœtal structures as productive of the toxin which was regarded as the essential factor in the disease. If this was so, then why did 20 per cent. of the cases occur post partum? or was this only an example of delayed action on the part of the toxæmia? Dr. Ballantyne suggested that an investigation should be made on new lines—viz., as to the solution of the reason why 499 women out of 500 remained healthy during pregnancy. The physiology of normal pregnancy must first be understood. It was known that every organ and tissue was affected, and that in health a harmonious symbiosis between mother and fœtus was established. It had been stated that at the end of a normal pregnancy the mother was really better than she was before, and that if both were healthy pregnancy could in no wise be said to be a case of "prejudicial parasitism." In eclampsia there was a break in this symbiosis. They should therefore welcome any work which threw light upon the complex bio-chemical problems underlying the physiology of pregnancy. Reference was made to the protective enzymes in the blood of pregnant women, more particularly in relation with the placenta; and Dr. Ballantyne observed that until they knew as much about the biochemistry of pregnancy as they did about duodenal digestion they could hope for little progress in their knowledge of the pathology of eclampsia. As regarded treatment, he thought that purely anti-toxæmic methods gave the best results. He regarded rapid emptying of the uterus as a source of great danger. Chloride of calcium (30 gr. to the pint) had proved very useful in his hands when employed as an intravenous injection in place of saline. He had also found it efficacious in chorea gravidarum, which after all was but another manifestation of probably the same toxæmia.

Dr. J. H. TEACHER (Glasgow), in opening the discussion, dealt with the morbid anatomy of eclampsia. He observed that he could add very little to the general conclusions expressed by Dr. Eardley L. Holland three years ago in his "Critical Review on Eclampsia" published in the *Journal of Obstetrics and Gynæcology*. The speaker had made post-mortem investigations in 21 cases of eclampsia, and he proposed to lay the results of his examinations before the members of the sections. The essential lesions were undoubtedly degenerative changes associated with cloudy swelling and capillary hæmorrhages into various organs. His 21 cases all showed macroscopical signs. In 6 cloudy swelling of the liver only was noted; 12 showed cloudy swelling and hæmorrhagic foci in the liver. These hæmorrhages were often very few, but in some cases were quite large. In 6 cerebral hæmorrhages of considerable size were found, whilst 3 exhibited symmetrical necrosis of the kidneys. It was a remarkable thing that the post-mortem results bore no direct ratio to the severity of the clinical symptoms. Little change was sometimes associated with an enormous number of fits, and on the other hand gross pathological lesions were found without convulsions. Occasionally regenerative changes were to be noted in various organs. The peculiar lesions seen in cases of eclampsia were to be attributed: (1) to the clotting power of the blood during pregnancy; (2) to the spasmodic contraction of certain vessels. In the kidneys the vessels affected were the first part of the interlobular capillaries. The symmetrical lesions might be very important in showing what really were the underlying factors of the kidneys in eclampsia. He formerly considered this symmetrical necrosis as very rare, but since 1909 he had met with three well-marked instances, and was inclined to modify his original view. The lesion macroscopically was very complete, but a small portion of the renal cortex adjacent to the medulla was left intact. At the margin of the cortex a dense thrombus was seen in the vessels, and the surface of the organ exhibited anæmic infarction. Dr. Teacher regarded these lesions as not a cause of the disease, but certainly an essential phenomenon. In the liver the lesions were situated around the portal tract, whereas in acute yellow atrophy the foci of necrosis occurred in relation with the hepatic veins. The hepatic cells in eclamptic lesions were shrunken and vacuolated. The

latter appeared at first sight to be a fatty change, but this was not so. Staining had shown the presence of much fibrin between the liver cells and also an abundance of polymorphonuclear cells. The latter were, of course, secondary to the necrotic change. The capillaries were frequently engorged and thrombosis was marked. This capillary distension and thrombosis produced a pressure necrosis of the hepatic cells. Similar changes were noted in the suprarenal and other organs. The speaker demonstrated the various pathological lesions by a series of very fine lantern slides.

Sir WILLIAM J. SMYLY (Dublin) opened the therapeutic part of the discussion and dwelt on the applications of recent research in the treatment of eclampsia. He said that the words "recent research" suggested the work of the chemist and bacteriologist. Workers on these lines had so far supplied us with an abundance of theories which had modified our practice from time to time, but hitherto they had failed to discover the cause. Treatment must always be the test of theory, and at the present time the treatment of eclampsia was based upon three considerations—viz., (1) the particular theory held by the practitioner; (2) urgency of the symptoms; (3) the results of previous experience. It was generally agreed that the disease was a toxæmia, and in applying this theory measures were taken (1) to prevent the formation of toxins; (2) to neutralise or destroy them when present; (3) to eliminate them from the system. Toxins must be of either ovular or maternal origin. Advocates of the former theory believed that best results were obtained by rapid evacuation of the uterus and recommended accouchement forcé, craniotomy, Cæsarean section, and in post-partum convulsions curetting. Dührssen had published his results of vaginal Cæsarean section in eclampsia and recommended the operation after the first fit. Out of 80 cases the mortality was only 15 per cent. and for some time the operation had many advocates. Dr. Mitchell, of the United States, had attributed eclamptic fits to the abstraction of calcium salts from the mother by the fœtus and recommended large doses of calcium lactate. In cases where the convulsions had been thought due to portions of retained placenta the curettings had failed to show any characteristic lesions. The mammary theory had resulted in practice, in injections of potassium iodide, Bier's method, massage and excision as performed by Sellheim. The intestinal theory had recently come into favour and had much to recommend it. Dr. Hastings Tweedy, at the Birmingham meeting of the Association in 1911, stated that the intestinal tract was the probable source of the toxæmia and advised gastric and bowel lavage and the cessation of all food. Pinard had lately said that in 35 years' experience he had never seen eclampsia occur in a woman who had been on milk diet for eight days. This did not prove that patients might not be better still with nothing at all. Vegetable acids had been recommended to neutralise the organic acids, more particularly lactic acid, formed in the bowel, and in order to prevent coagulation of lymph and thrombosis lemonade had sometimes been prescribed in eclampsia. To destroy or neutralise the toxins efforts had been made by infusion of the serum of pregnant women or of horse serum. Leith Murray had suggested antivenin. To eliminate the poison many methods were in vogue. The skin, the bowels, and the kidneys had all been called upon. Diaphoresis was really more likely to do harm by abstracting water, and it was far better to introduce fluid than to withdraw it. This might be done through the rectum, skin, or vein. Owing to supposed dangers of chlorœmia from common salt sodium bicarbonate or sugar was to be preferred. In a few cases renal decapsulation appeared to have been of value, but as a general rule it should be reserved for cases of anuria occurring after pregnancy when all else had failed. Phlebotomy, in France at least, appeared to be coming into favour again. It removed some of the poison, increased the action of the kidneys, and lowered blood pressure. Dienst had gone so far as to say that the benefits attributed to Cæsarean section and other operations were really due to loss of blood. Zangemeister believed that eclamptic convulsions were due to pressure of the veins within the skull, and for this reason he had trephined and opened the dura mater. Lumbar puncture had been recommended for similar reasons, but had not met with much favour. By some eclampsia was thought to be due to spasm of various blood-vessels, and this had led to the employment of various narcotics—e.g., morphia, chloral, and chloroform. The latter was now generally abandoned. The symptomatic treatment of eclampsia was most important. It might be summed up in the prevention of injury, inhalation of mucus, asphyxia, high arterial tension, and heart failure. The patient should be placed on her side with the head hanging over the side of the couch. The chin should be depressed and all mucus removed from the mouth. Constant attention, as advocated by Dr. Hastings Tweedy, was most essential to success. Oxygen should be administered between the fits and the arterial tension lowered by phlebotomy and veratrum viride. Sir William Smyly concluded by considering the subject from a synthetic standpoint. It was necessary, he said, in deciding the value of any system of treatment to fall back upon statistics, and for this purpose hundreds of cases must be collected. It was a common experience with any method to have a long series of successes followed later by a greater or less mortality. However, from available statistics the following conclusions were possible: (1) accouchement forcé, especially by version and extraction or high forceps, was attended by a very high maternal and fœtal mortality; (2) Cæsarean section had given somewhat better results, but statistics had failed to prove the advantages claimed for it; and (3) the best results were obtained by treating the symptoms and assisting, but not forcing, delivery, as practised by Stroganoff and Tweedy.

Professor I. WALKER HALL (Bristol), after congratulating the openers of the discussion, thanked Dr. Ballantyne for bringing forward the importance of the physiology of pregnancy. Advances in their knowledge of this disease must come from the biochemical laboratories, and it was to the physiologist that they must turn in the future. Professor Hall then referred briefly to the ferments of the blood and to the work of Abel Fischer in isolating and estimating the amino-acids derived from the proteins therein. Schmorl and a few others, he said, had prepared similar decomposition products from the proteins of the placenta, and had shown that the blood of pregnant and non-pregnant women possessed very different powers in splitting up placental proteins *in vitro*. Similar power was possessed by human milk. In the case of the blood it was thought that this power resided in the pseudo-globulin fraction. In dealing with eclampsia, therefore, it was essential that we should begin *de novo*, and we must express the tissue cell changes in chemical terms. So far, the word "toxin" had been employed as an etiological factor only. It was more conceivable to regard eclampsia as due to a "difference of balance" in the cell, and that the disease was analogous to diabetes, for example. We knew, he said, that in diabetes the organs were coping with an overstrain and this led to hypertrophy. It was quite possible that in the early days of pregnancy the "cell balance" was upset in a similar way. As far as he could see, the modern treatment of eclampsia consisted in administering a series of what he would call "cell shocks." Fluid was either withdrawn, or introduced, or the system was subjected to other sudden changes. He sincerely hoped that before many decades something more tangible would be brought forward.

Dr. H. LEITH MURRAY (Liverpool) said that no mention had been made of anaphylaxis with regard to eclampsia. Like many new theories, it had been run to death. Much work had recently been done upon the immunity of pregnancy. Undoubtedly there was a sensitisation of the maternal organism by the placenta, and the diagnosis of pregnancy could readily be made by complement-fixation tests. He did not think that it followed, however, that the toxins were anaphylactic. The fall of temperature, blood pressure, and absence of acute emphysema were all against this theory. Flexner, in 1902, pointed out that the hepatic lesions were due to agglutinative thrombi, the result of a toxin. The eclamptic toxin could be split into five units—viz., thrombotic, hæmolytic, hæmoglutinative, endotheliolytic, and neurotoxic. A consideration of these units showed that death might occur early or late, and this accounted for the apparently slight or severe lesions found post mortem. Now, all venom poison contained the same constituents. Cobra poisoning produced an exactly similar train of symptoms and pathological lesions, and therefore Dr. Murray suggested that the biochemist must look in the syncytial cell for an enzymal poison of venom nature.

Dr. F. W. N. HAULTAIN (Edinburgh) thought that the

liver was the source of the toxæmia, and he was also of opinion that the disease was predisposed to by climatic or hygienic causes. Otherwise he found it difficult to explain the comparative frequency with which eclampsia was met in Scotland. In 1911 he had treated 14 cases in 144 patients, whilst at the Rotunda Hospital in the same period 14 cases were encountered in approximately 2000 women treated for various complications. As regarded treatment, he followed the physiological view, and resorted to purgation, diaphoresis, and blood-letting. He did not favour saline infusions, as these tended to increase the blood pressure. He had entirely given up the use of morphia and chloroform and relied upon bromides (60 gr. per rectum) and syrup of chloral (℥i.). He was a believer in emptying the uterus if labour was not already in progress, and in his last three cases he had performed vaginal Cæsarean section. Finally, he thought that it would be of the greatest value if all women could be instructed in the importance of periodical examination of the urine throughout pregnancy.

Professor J. B. HELLIER (Leeds) observed that in 99 cases out of 100 albuminuria could be checked by the employment of a milk diet.

Sir JOHN BYERS (Belfast) said that eclampsia might well be called the "disease of theories," and he thought that treatment was here a little ahead of pathology. He could not think that climatic conditions or diet had anything to do with the etiology. Certainly the disease was not increasing in Ireland. The only criticism that he would offer was that Sir William Smyly had been too modest in speaking of the brilliant results that had been obtained at the Rotunda Hospital, not only during the mastership of Dr. Hastings Tweedy, but also during that of Sir William Smyly himself. As regarded his own practice, he had found no good result from diaphoresis or venesection, and in place of saline infusions he employed a solution made from tablets composed of salts identical in composition and strength with those occurring in the blood. Morphia he had used with very good results, even with doses that had depressed the respirations to 6 or 7 per minute. He was entirely against emptying the uterus. If labour came on naturally it might be accelerated, but it must not be induced. Vaginal Cæsarean section at term he had always found to be a difficult operation and in his opinion of no value in these cases. His dictum for treatment was total abstinence from food, free purgation, rectal lavage, and the prevention of œdema of the lungs by the lateral position.

Professor J. M. MUNRO KERR (Glasgow) drew attention to the destructive properties of the trophoblast of the early ovum on the uterine endometrium, and thought that the cause of the disease might be associated with this property. He suggested that the immunity of multiparæ was possibly due to the storage of antibodies from previous pregnancies. Accouchement forcé he was opposed to, and vaginal Cæsarean section at term was certainly a difficult operation. If any operation was to be performed it should be abdominal Cæsarean section, and this must be reserved for the most severe and almost hopeless cases. He also wished to draw attention to the very excellent arrangement that existed in Sweden as to the means of educating the public in things medical. The yearly almanacks were issued by the Government and in each a page or two was devoted to instruction of the people upon matters of health. A few years ago this very question of care during pregnancy was the subject selected. The almanacks went to every woman in Sweden, and Professor Munro Kerr was perfectly certain that they had had a very beneficial effect.

Dr. AMAND J. M. ROUTH (London) said that of the physiology of pregnancy they knew little, and of the various toxæmias still less. The problems awaiting solution were many. The onset of labour, menstruation, the toxæmias of hyperemesis and chorea gravidarum, and the insanity of pregnancy were all subjects demanding investigation. In the case of eclampsia he thought that it was the severe type of the disease that must be combated. The mild cases would recover whatever was done. He regarded the present association of the Obstetrical and Pathological Sections as a matter of much moment. Such combinations must do good.

MRS. MARY A. D. SCHARLIEB (London) detailed her experience of the course and treatment of the disease in India 40 years ago. In 1873 there was an unusually high mortality from eclampsia in Madras. The majority of the cases occurred in primiparæ and frequently with twin pregnancies or hydramnios. Pyrexia of 104° or 106° F. was common, and many cases were associated with jaundice or hæmorrhages. The treatment adopted used to be chloroform narcosis, free purgation with calomel and croton oil, the administration of veratrum viride and alcohol, and diaphoresis to combat the renal symptoms. The results with this treatment were not brilliant.

Dr. SHOLTO DOUGLAS (Birmingham) wished to put forward a plea for immunity in the case of eclampsia. When an animal was actively immunised there was a rise in the content of antibodies in the blood, but this subsequently diminished. In the blood of a normal pregnant woman it seemed that antibodies against the eclamptic toxin were present. If these antibodies were not present eclampsia resulted, because of the toxins which he regarded as normally present. If an animal that had been actively immunised was bled a considerable quantity of antibody was presumably removed, but experiment had shown that it was actually increased. This had been proved by von Schroeder in the case of animals with antigen. It was therefore possible to explain the good effect of bleeding in eclampsia on these grounds. Not only was toxin removed, but the antitoxic power of the blood was thereby increased. Purgation would, of course, act in a precisely similar way.

Dr. W. S. A. GRIFFITH (London) had learnt much during the discussion, but after all, he asked, what *was* eclampsia? Surely the convulsions were but one sign amongst a large group of toxæmias. In the matter of treatment also it was necessary to recognise two great factors: (1) the treatment to be adopted by those whom fate placed in charge of large maternity hospitals; and (2) that to be instituted by the practitioner, who perhaps for the first time was brought face to face with this dread disease. What was he to do? The principle to be observed in all cases was not to kill the patient by the means used to save her life. If the majority of patients were left alone, with simple treatment only, they would get well. This explained why different therapeutic measures from time to time all gave equally good results. He also regarded it as an absolutely certain principle that in all these toxæmic conditions a woman was safer when delivered.

Dr. W. W. CHIPMAN (Montreal) agreed very thoroughly with the views expressed by Dr. Ballantyne and Dr. Walker Hall. In America a large number of men were working on these lines and their work would shortly be published. He had always grouped his cases into two divisions, viz.: (1) "liver" cases, which were more severe, and of grave prognosis; and (2) "kidney" cases, the majority of which got well without any treatment. With the former he thought that it was best to deliver the patient at once. He thanked the Obstetrical Section on behalf of Canada and himself for the honour of being elected a vice-president of the section.

Dr. BALLANTYNE, in replying, said that the seeds of eclampsia were very probably planted during the early months of pregnancy, and that chorea and hyperemesis gravidarum were quite possibly the paths which would lead to a solution of the problem. With regard to the results of treatment, he thought statistics involving less than 100 cases were of little use. He quite acquiesced in the plea made by Sir John Byers for a "pre-maternity" hospital.

Dr. TEACHER, in replying, said that he was not aware that rattlesnake poisoning presented so close an analogy to eclampsia, but was afraid after all that it was a false trail. It was certainly as varied in its results as eclampsia. Furthermore, it produced *general* clotting. He was firmly of the opinion that closer collaboration between pathologists and obstetricians was much to be advocated. The whole subject of eclampsia was one of the most difficult of all problems to investigate.

Sir WILLIAM SMYLY, in replying, said he would like to flatter the pathologists and biochemists upon the excellent work that they had already done. At the same time he should always try to get out of them all that he possibly could. With regard to operative midwifery in these cases he was not obstinately opposed to it, but, as Dr. Griffith had said, care must be taken not to kill the patient with treatment. He was certain that if such methods were employed as a routine the mortality would be over 20 per cent.

PHARMACOLOGY AND THERAPEUTICS.

THURSDAY, JULY 25TH.

President, Professor W. E. DIXON, F.R.S. (Cambridge).

The proceedings of this section opened on Thursday with a discussion on

The Treatment of Heart Muscle Affections apart from Valvular Disease.

Dr. G. A. GIBSON (Edinburgh), in opening the discussion, pointed out that muscular affections of the heart and certain nervous affections of that organ were practically inseparable. The principal causes of degenerative changes in the heart muscle were microbic; chemical poisons—either extraneous or autochthonous; and the cessation of certain internal glandular secretions. A combination of physical and mental overstrain had also to be seriously considered in the etiology. The symptoms were generally those of cardiac inadequacy. Disorders of rate and rhythm counted for less than changes in the arteries themselves and in arterial pressure. He believed the electro-cardiograph was a valuable means of assessing cardiac energy. An estimation of the size of the heart by means of the orthodiagraph was also helpful, but any increase so found must be submitted to a critical examination in each case. In the treatment of chronic myocardial conditions complete rest was the first requisite and was really the best cardiac tonic. This should be carried out in the open-air whenever possible. The diet must be such as would not cause dilatation of the hollow viscera, and with this point free elimination was closely associated. In chronic infectious cases the iodides were *facile princeps*, and in combined disturbance of rate, rhythm, and pressure nothing was so useful as digitalis with bromide of potassium, especially in certain tachycardias. In bradycardia they were on more difficult ground, although Dr. Gibson had seen benefit result from a combination of strychnine with belladonna. When, however, this had resulted from degenerative changes in the auriculo-ventricular bundle nothing was of any use. In the cardiac breakdown attending Graves's disease suprarenal extract was the best available remedy. He referred to the possible benefits attending the use of an extract of heart muscle in such cases, and in conclusion expressed his belief in the Swedish system of exercises as opposed to Schott's method of resistance exercise.

Professor A. R. CUSHNY (London) confined his remarks to the use of drugs of the digitalis series. He referred to his observations in collaboration with Dr. James Mackenzie, which aimed at a differentiation of the conditions in which digitalis was of benefit from those in which it was not. The tincture of digitalis carefully standardised was probably the most constant of all the various preparations of the drug, and was the only one used in the inquiry. Those forms of auricular fibrillation accompanied with rapid pulse gave the most striking results with digitalis, and in each case the treatment brought about a marked fall in the pulse-rate, while the dyspnœa and præcordial pain passed off. The exact mode of action of the drug in this connexion was largely a matter of conjecture. Digitalis might conceivably act upon the bundle of His, reducing its capacity for conveying impulses to the ventricle. More probably, however, the excitability of the ventricle was so reduced that it responded to fewer impulses. The drug acted best when given in the largest doses the patient could stand. The cumulative action was not of such serious account as had been supposed. Treatment to be effective must be continued over a long period of time, and the patient ought to be "educated" to take it on his own responsibility.

The PRESIDENT laid stress upon the importance of the internal secretions to the myocardium, and discussed the relative rate of absorption of the digitalis bodies.

Dr. JOHN HAY (Liverpool) divided cases of chronic cardiac degeneration into four main groups: (*a*) senile obese; (*b*) cardio-arterio-sclerotic without raised blood pressure; (*c*) cases with transient irregularity; and (*d*) those with auricular fibrillation. In the treatment of any case the group into which it fell must be clearly determined. He, too, emphasised the importance of rest and sleep in the treatment and referred to the benefit of chloral in this connexion, and in the relief of dyspnœa. Graduated exercise taken within the limit of the patient's power and with his intelligent coöperation was a very valuable adjunct to treatment. The use of iodides was only another way of giving rest to the cardiac musculature. In auricular fibrillation in particular the treatment of each case was a therapeutic experiment.

Dr. F. W. PRICE (London) referred more particularly to chronic myocardial disease following infection by rheumatism. The fact of the damage done must be recognised early, and its degree approximately estimated; the efficiency of the working power of the heart must be ascertained in each individual. The employment of digitalis in cases of auricular fibrillation gave brilliant results, but in myocarditis without auricular fibrillation it was not so useful.

Professor H. J. CAMPBELL (Bradford), Dr. J. GORDON SHARP (Leeds), Dr. A. J. CLARK (Liverpool), and Dr. D. W. SAMWAYS (Mentone) continued the discussion, the latter referring more particularly to the slowing of the pulse produced by the use of warm baths up to 96° F.

Dr. CLARK then read a paper on

The Standardisation of Cardiac Tonics.

He dealt with certain results obtained by Dr. Waller, who suggested that digitalis had an action upon frog's striped muscle similar to its action upon the frog's heart muscle. Dr. Clark had carried out some experiments with strophanthin and digitonin upon the frog's heart and striped muscle, and in the light of these experiments he discussed Dr. Waller's results. His conclusions were that the digitalis group which produced systole of the frog's heart had little or no action upon striped muscle, but that the saponins contained in digitalis which had little action upon the heart would readily produce rigor in the frog's striped muscle. The action of digitalis preparations upon striped muscle depended therefore upon the quantity of saponin the preparation contained, and bore no necessary relation to the activity of the drug as affecting the heart. The paper was illustrated by lantern slides showing the effect of various concentrations of digitonin and strophanthin upon the frog's heart.

Dr. PRICE followed with a paper on

The Action of Digitalis on the Blood Pressure of Man.

He held that there was no foundation for the generally expressed belief that the administration of digitalis raised the blood pressure in man by a constriction of the peripheral vessels. This belief rested—with the exception of Sir Lauder Brunton's observations by means of the sphygmograph upon himself—entirely upon experiments on animals in normal health. Although it might be proved that a particular drug had a certain action on a healthy animal, it did not necessarily follow that it had the same effect on a human being in a diseased state. Further, the vaso-constrictor mechanism was much more perfect in man. He had carried out an investigation at the Mount Vernon Hospital on 15 cases without auricular fibrillation. Digitalis was administered until some definite reaction was obtained. In only one case was a rise of blood pressure obtained. In three cases there was a fall of blood pressure, and in the remainder there was no change in this respect. Further investigation had proved that in a considerable percentage of cases there were normal fluctuations of blood pressure up to 26 mm. The conclusions to be drawn from these observations were that digitalis did not raise the blood pressure in man by constricting the peripheral vessels, and that there was no risk in administering it in the case of those suffering from degeneration of the blood-vessel walls.

Dr. C. J. M'ALISTER (Liverpool) then read a

Contribution to the Study of Symphytum Officinale.

He said that its utility in the treatment of ulcerative conditions and of burns had been confirmed by numerous observers who had referred to the way in which this ancient vulnerary had cleaned up the bases of septic and sloughing ulcers. It had been found to possess no toxic properties, and favoured rather than inhibited the growth of organisms. Experiments on culture media containing 0·2 per cent. of allantoin did not in any way interfere with the growth of bacillus coli, staphylococcus, streptococcus, or the tubercle bacillus. Allantoin was found in those parts which were related to active growth, both in plants and animals. It was plentiful in the fœtal allantois, and in the comfrey rhizoma it was abundant in spring and autumn. There was evidence to show that the plant withdrew its allantoin from the rhizoma and utilised it for cell proliferation. He referred to numerous experiments on hyacinth bulbs which showed that the injection of 0·5 per cent. solution of allantoin into the

bulb resulted in forcing the growth of the shoots, and especially of the flowers, while there was comparatively little leaf growth. Control injections of ordinary water resulted in the plants growing better, but not so rapidly as those to which allantoin had been added. An attempt was then made to see whether allantoin had any effect on malignant cell growth—cases having been recorded in which cancerous and sarcomatous growths had been benefited by treatment with comfrey. The results were unsatisfactory. Sarcomata treated with allantoin appeared, if anything, to grow more rapidly than before. It would, in fact, seem to be dangerous to give it in malignant cases. It had no power to produce a somatic cell from a malignant one. The evidence went to show that allantoin was related to nucleic acid. Experiments with meta-phosphoric acid in combination with allantoin had given good results in tuberculous sinuses and abscesses, when administered internally and hypodermically. Added to milk in cases of wasting and rickets in children it promoted growth and nutrition.

NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

THURSDAY, JULY 25TH.

President: Dr. LANDEL ROSE OSWALD (Glasgow).

Dr. ERNEST S. REYNOLDS (Manchester) opened a discussion on

The Diagnosis and Treatment of Compression Paraplegia.

Dr. Reynolds gave a concise, but sufficiently detailed and complete, account of the diagnosis of the various conditions giving rise to compression paraplegia, and raised many interesting points for discussion. In regard to spinal caries, he showed how great compression may occur without obvious deformity. He pointed out how sometimes the earliest symptoms of malignant growths of the vertebræ, secondary to growths elsewhere, were scarcely to be distinguished from those of neurasthenia or hypochondriasis. He said that radiography should be the servant and not the master of the diagnostician, and quoted an illustrative case where the X rays revealed, apparently, some bony thickening of the vertebral column, on account of which the surgeon refused to operate. At the post-mortem examination no disease of bone was found; there was, however, a spinal tumour which might easily have been removed. After discussing fully the segmental diagnosis Dr. Reynolds proceeded to describe the difficulties associated with the diagnosis of the nature of the lesion. He also discussed questions of differential diagnosis, especial reference being made to the great frequency with which disseminated sclerosis occurred in Manchester and its neighbourhood, and how in its spastic paraplegic form a definite diagnosis was sometimes very difficult. He mentioned the occurrence of pain in some of these cases, a symptom which rendered differential diagnosis still more complicated. Reference was also made to compensation cases following trauma.

Sir VICTOR HORSLEY (London) dealt with the subject from the point of view of the surgeon. He said the question of removing compression was simple from the technical standpoint, but the results were naturally problematical if the case had been allowed to go on for months. He was convinced that in many cases motor and sensory paralysis occurred which should never have been allowed to occur. He dealt first with fractures of the spine; and in the matter of deciding for or against operative interference he suggested that the nature of the fracture, whether caused by direct or indirect violence was an important point. In fractures by direct violence, operation was always indicated, even though no deformity were noticeable. A fracture in the neighbourhood of the pedicle might not reveal itself by external deformity, yet it might seriously interfere with the anastomosing circulation through the intervertebral foramen. In fractures by direct violence with angular or lateral deformities the question was less easy. Speaking generally, all partial and moderate cases ought to be operated on, and the sooner the better. Where the fracture and compression were severe he thought that in cases with the lesion situated above the level of the second dorsal segment operation was inadvisable, especially where vasomotor phenomena were marked. On the other hand, in cases below the level of the second dorsal segment the matter became one of anatomical localisation. If the cord was obviously lacerated operation was contra-indicated. Hæmatomyelia was often a further complicating factor rendering surgical interference useless. Sir Victor Horsley thought that cases of fracture-dislocation were often kept far too long in bed after the accident. Seeing that the bones ankylosed in two months he considered that thereafter every effort should be made to get the patient to assume the vertical position again. Compression paraplegia from tumours was of common occurrence, and he pleaded strongly for the desirability of early diagnosis, quoting illustrative cases where in spite of surgical success no improvement resulted in the patient's condition owing solely to the duration of the paraplegia. The question was one not merely of removal of compression but also of the recoverability of the cord, and this depended on the age of the patient and the duration of the compression. Dealing with spinal caries, Sir Victor Horsley said there should be no such thing as paraplegia in caries; the bone disease ought to be operated on long before paraplegia set in. He emphasised the great value of radiography in this connexion. He thought tuberculous disease of the vertebræ ought to be treated in exactly the same way surgically as, say, tuberculous disease of the femur. Finally, he referred to caries sicca, in which the circulatory supply of the cord was affected early, and said that his experience of surgical treatment of these was that temporary improvement was succeeded by aggravation of the condition after some months or a year.

Dr. C. M. HINDS HOWELL (London) based his remarks on the pathological examination of 14 cases of compression paraplegia, of which nine were tumour cases, four spinal caries, and one so-called pachymeningitis, or rather circumscribed serous meningitis. He illustrated the cases by lantern slides of the pathological changes found. In the case of pachymeningitis with paraplegia he could find no degeneration in the pyramidal tracts. In spinal caries he protested against early operation, and referred to the statistics from Treloar's Home for Cripples, where all the cases of spinal caries were treated by immobilisation and rest and where only one case of paraplegia had occurred.

Dr. T. GRAINGER STEWART (London) described the symptoms and signs differentiating between various types of compression paraplegia, according as the disease was in the bones, or in the meninges and roots, or in the spinal cord. He distinguished between local and remote symptoms. Great importance was attached to the type of sensory change in distinguishing between intramedullary and extramedullary lesions; reference was also made to the difference in the order of the symptoms in extramedullary tumour cases, according as the tumour was soft, surrounding the cord, or firm and spindle-shaped, pressing on the cord from one side. Dr. Stewart pointed out how extramedullary tumours might give rise to intramedullary symptoms. He referred to the occurrence of nystagmus in three cases of spinal tumour.

Dr. W. B. WARRINGTON (Liverpool) quoted two interesting cases of compression paraplegia: the first was one of spastic paraplegia with dissociated sensory loss to the twelfth dorsal level, and a curious nystagmus. Operation at the upper level of the anæsthesia revealed no tumour and no definite signs of actual compression beyond a cerebro-spinal fluid under great tension. The case had been too recently operated on to say whether improvement had occurred. The second case was one of Brown-Séquard paralysis in an elderly man: a cyst of about the size of a "monkey-nut" was found, compressing the cord by bands stretching across from it. A very fair recovery from the symptoms subsequently ensued.

Dr. W. GRANT MCAFEE (West Kirby) described in detail a case of compression paraplegia that had been under Dr. Warrington's care in hospital. The symptoms had been of six years' duration, and while the level was easily recognised the patient died on the third day after the operation. The lesion was a peculiar vascular tumour, the posterior aspect of the cord being covered and infiltrated with vessels (dilated veins and comparatively large arteries), in many of which there were marked endarteritis and fibrillation of the elastic coat.

Dr. F. E. BATTEN (London) referred to the important matter of the differential value of thermanæsthesia as between intramedullary and extramedullary lesions, and described illustrative cases, making it abundantly clear that dissociated sensory changes presumably indicative of intramedullary lesions might occur from extramedullary disease-

He strongly deprecated operation in cases of spinal caries, and considered that rest was in the great majority of cases quite satisfactory from the therapeutic standpoint. He admitted that his experience lay mostly with children.

Dr. REYNOLDS and Sir VICTOR HORSLEY replied, the latter emphasising the difference existing, as he considered, between child and adult cases of spinal caries in the matter of operation.

Dr. COLIN F. MCDOWALL (Leek, Staffordshire) read a paper on

The Nuclei of the Neutrophile Cell in Acute Insanity.

After describing his technique and his method of enumeration and description, he brought forward evidence, based on the repeated examination of acute cases of insanity, to show that the nuclei of the neutrophile leucocytes underwent changes at irregular intervals throughout the disease not corresponding to any particular mental state, but probably the expression of a call on the organism to overcome a toxin.

PHYSIOLOGY.

THURSDAY, JULY 25TH.

President, Professor J. S. MACDONALD (Sheffield).

Dr. T. GRAHAM BROWN (Liverpool) read a paper on

The Mechanics of Progression.

He likened progression to a pendulum swing, in which theoretically no work was done from one point to another; but as the conditions in progression were not perfect a certain amount of energy had to be used in giving a continuous "incremental velocity" which served in overcoming these imperfections. He illustrated his remarks with an analysis of flight by gliding in birds and of progression by walking in man.

The PRESIDENT gave some figures with reference to the energy used in progression, and Dr. GRAHAM BROWN replied.

Professor BENJAMIN MOORE (Liverpool) opened a discussion on

The Importance of Minimal Substances in Diet.

He spoke of the importance of the study of internal secretions, and emphasised their widespread occurrence in the body. He gave a valuable description of the experiments and observations of the significance of minimal substances in diet; referred to Eichhorn's observations with birds, in which he fed them upon washed rice, and to the neuritis thus produced; and then passed on to the consideration of beri-beri, pointing out that in this condition a state of neuritis followed the use of polished rice. He described the body that might be isolated from rice and yeast, and referred to the experiments of Casimir Funk, and to the work done in his own laboratory. He stated that Funk had shown the body—which was present in very minute quantities—to be of the nature of a base. He considered scurvy and the experiments of Axel Holst, which showed the importance of fresh food in the case of guinea-pigs and rabbits. The relative values of sterilised and non-sterilised milk and the experiments thereon done in his own laboratory were discussed, and he thought that in sterilising milk they were on the wrong lines in thinking that milk must need sterilisation for certain purposes, and in not realising the greater importance of the purity of the source. He turned to the question of minimal substances in bread, stating that the subject would repay investigation. Important nitrogenous constituents—which might be even necessary—might yet be reduced in milk and in bread. The nature of these important substances was discussed. He questioned the accuracy of an assumption that they were phosphatides, but thought them probably closely connected therewith, and he endorsed the likelihood that they might be decomposition products of phosphatides.

Dr. CASIMIR FUNK (London) gave an interesting account of the basic substances which he had isolated from rice, yeast, milk, and ox brain, and of the methods of isolating them. He spoke of the substances in lime-juice and said that there were probably present two substances—an anti-scorbutic and an anti-neuritic body. In conclusion, he treated of the importance of allantoin.

Mr. G. C. E. SIMPSON (Liverpool) noted the differences between the substance which he had isolated and that of Dr. Funk. He noted the possibility of some forms of infantile paralysis being of similar origin to beri-beri, although in the main the condition was toxic. He mentioned Holst's experiments with guinea-pigs and scurvy, in which it was shown that these animals readily contracted scurvy when fed on any restricted diet if it did not contain greens. He then said that he could not absolutely confirm the statement that guinea-pigs lived longer on oats and fresh milk than on oats and sterilised milk; he himself could not get any absolutely constant results. He, however, endorsed the statement as to the value of fresh milk and the relatively smaller value of sterilised milk. He noted the differences in nature of the anti-scorbutic substances in dandelion and cabbage, and passed to the consideration of pellagra. In this connexion he described some interesting experiments with albino guinea-pigs and rabbits in which they were fed upon maize and exposed to the sunlight. He suggested that pellagra was due to a neuritis of sensory nerves and beri-beri to neuritis of motor nerves. He turned then to the question of rickets, and, in conclusion, raised the interesting question of the relationship of the incidence of beri-beri to the price of rice.

Dr. H. M. VERNON (Oxford) discussed the question of the important substances, and suggested that they were of the nature of complex lipoids which might be destroyed by solution in chloroform, but escaped if dissolved in ether.

Dr. PIKE (New York) treated of the composition of the lipoids. He believed that combination of the lipoids with certain inorganic bases played an important part.

Professor W. H. THOMPSON (Dublin) stated that they were at the opening of a new chapter in the study of nutrition, and would probably find that along with every article of diet there was some important minimal substance, of different composition in each case. He gave an account of some experiments with arginin and endorsed the opinion that white bread was a satisfactory article of diet in the case of the better classes of people, for they obtained the necessary removed portions in other ways, but that for the poorer classes the products from the outer layers should not be removed.

Dr. HADDON spoke about chemical constitution and physiological action of foods.

Professor A. S. F. GRÜNBAUM (Leeds) asked regarding the experiments done in Professor Moore's laboratory.

Dr. HEWETSON (Birmingham) gave some interesting observations from his own experience with regard to scurvy. He thought that the scurvy seen in South Africa was not the same as that experimentally produced in animals.

Professor MOORE, in replying, stated that there was a close connexion between the lipoids and the metabolism of muscle proteins, and emphasised the importance of the avoidance of restricted diets. He referred to the experiments of Professor Hopkins, and also dwelt upon the importance of various stimulants of the central nervous system in food. In referring to the differences in the chemical constitution of the active substances isolated from rice and from yeast, he noted the probability that the substances were chemically different.

Dr. H. E. ROAF (London) then opened a discussion upon

Tissue Respiration.

He observed that certain of the processes carried on in the body were unaccompanied by an increase of gaseous exchange, and drew the conclusion that therefore they apparently did not involve transformation of energy. He quoted, as instances of these processes, the glomerular filtration in the kidney and the activity of the extensor muscles in "decerebrate rigidity." He considered the differences between oxygen tension and the total amount of oxygen consumed, and stated that the oxygen tension in the tissues was not zero.

Dr. VERNON referred especially to the part played by enzymes in the various processes of oxidation and the experiments of Stepp and of Hopkins. He stated that tissues varied in their oxidase content. He admitted that the presence of intra-molecular oxygen was not proved, but held that there was strong evidence in favour of it.

Professor F. A. BAINBRIDGE (Newcastle) spoke of the gaseous exchange in the kidney, both at rest and in activity. He was tempted to believe that the evidence in favour of the statement that there was no transformation of energy in glomerular filtration was inadequate.

Professor T. H. MILROY (Belfast) referred especially to the gaseous exchange in apnœa. He particularly emphasised the possibility that investigation of the gaseous exchange of

isolated tissues, if kept as nearly as possible under normal conditions, would yield valuable results.

Professor MOORE emphasised the importance of the factor of carbon dioxide. He threw doubt upon the presence of the two classes of oxidising ferments. He said that in his opinion it was not necessary so far to fall back upon any enzyme in the explanation of the facts at present known.

Dr. ROAF and Dr. VERNON then briefly replied.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 24TH.

President, Colonel DAMER HARRISSON, A.M.S. (T.F.) (Liverpool).

After the President had welcomed the officers of the Naval and Army Medical Services and Major-General Walter Lindsay, commanding the Territorial Division, with his staff, Captain N. DUNBAR WALKER, R.A.M.C., read a paper on

Factors Affecting the Marching Power of Troops.

He said that for the ordinary work of marching the older the man was, within limits, the better. The man of average height was the best marcher, and as long as weight was not disproportionate to height it might be disregarded. The defective should be weeded out before a campaign. The moral side of marching must not be forgotten in training, for when marching was habitual fatigue was far more easily endured. Regimental *esprit de corps* was an effective aid. Music was a real stimulant as well as a guide to cadence. The present load of 59 lb. should be reduced to 47 lb. Any well-nourished man should be able to march 20 miles or more without eating, but it was essential that he should start with a good breakfast. Water loss on the march must be replaced. The contents of the present water bottle (1½ pints) should suffice for a 14 miles' march in temperate climates. A regular pace was most important. In the rests the prone position was recommended, all weights being removed. On long marches the billet was better than the bivouac. The regulation of the body temperature was most important. Special precautions must be taken when the relative atmospheric humidity was high. The available evaporating surface should be increased, and if possible ranks should be opened.

The PRESIDENT said that Professor Macdonald's work in the physiological department at Liverpool had demonstrated that to avoid fatigue it was necessary that the flexor and extensor muscles of the thigh should have the chance to relax completely between each pace, which affected different marching powers of individuals who could not choose their own pace.

Major-General LINDSAY, commanding the West Lancashire Territorial Division, said that all his men suffered from some of the difficulties referred to by Captain Walker.

Surgeon-General W. BABTIE, A.M.S., pointed out that in consequence of the fact that the army must always contain a considerable proportion of undeveloped men, training in marching with the full service load was essential. He did not see how the present excessive load could be lightened except by reducing the weight of ammunition carried, a matter for the general staff.

Mr. T. S. ELLIS (Gloucester) insisted that the feet should be turned straight to the front in marching and not at the regulation angle.

Colonel ADAMS (North Lancashire Infantry Brigade) praised cross-country races for developing physique, and dwelt on the injurious effects of cigarette smoking in the immature.

Major W. M. H. SPILLER, R.A.M.C., Fleet-Surgeon W. A. WHITELEGGE, R.N., and Fleet-Surgeon A. G. WILDEY, R.N., also spoke, and Captain WALKER replied.

Fleet-Surgeon WILDEY read a paper on

The More General Use of Iodine in First-aid Treatment of Accidental Wounds,

based upon 18 months' experience in the surgical section of the Royal Naval Hospital, Chatham. All compound fractures, no matter how severe, were always flushed out with a 2 per cent. solution of iodine in rectified spirit as soon as possible. Sepsis was consequently practically unknown. The aseptic course in cases of crushed hands was particularly noticeable. At H.M. Dockyard, Chatham, the application of iodine solution to all accidental wounds was a routine practice. He discussed the causes for the efficacy of the treatment. In his experience symptoms of iodism had never occurred. He emphasised as its advantages: its distinctive colour rendered mistakes unlikely; it was practically non-poisonous; it conduced to the dry treatment of wounds, and as a domestic remedy would banish the wet rag, poultices, and so forth; it was an ideal antiseptic for ambulance work. A spray producer was an efficient method of applying the solution. The author showed a special bandolier of his own devising, which might be used for carrying iodine charges in glass capsules contained in collapsible tubes for the purpose of readily procuring the 2 per cent. solution.

THURSDAY, JULY 25TH.

Fleet-Surgeon WHITELEGGE, in a paper on

Eyestrain, its Relation to Gunnery,

enumerated the special factors as ciliary strain from using range-finders and other instruments, extrinsic muscular strain due to the same cause, retinal strain from the sea glare, using the telescope with one eye closed, and protracted stay in artificial light. Astigmatism was a general cause. Blindness might result in extreme cases.

Surgeon-General BABTIE endorsed the suggestion that the increasing use of instruments was responsible for much eyestrain.

Lieutenant-Colonel NATHAN RAW, R.A.M.C. (T.F.) (Liverpool), then read a paper on

The Treatment of Syphilis, with Special Reference to Salvarsan,

in which he insisted on the necessity for early diagnosis by Burri's Indian ink method or by dark-ground illumination. In the second stage salvarsan might increase the symptoms, and it was contraindicated in circulatory or nervous degeneration and in functional derangements of the liver or kidneys. His experience of its use in congenital cases and general paralysis had not been favourable, but it had been very successful in the primary and secondary stages, though mercurial treatment could not yet be discarded.

Major D. SMART said that, like Lieutenant-Colonel Raw, he had found salvarsan of great value in the superficial or skin lesions of syphilis—in nervous cases he had not yet proved its value. As regarded mercury, he strongly upheld the inunction, or Aix-la-Chapelle, treatment. Properly performed it was as far in advance of mercurial injection as injection was, in its turn, of oral administration. There were difficulties in the inunction of private cases, and in hospital he found that hospital patients kicked against inunction; he therefore in hospital was obliged to use injection. Aix-la-Chapelle treatment could never be introduced at a watering-place in England. In this country syphilis had to be treated secretly.

Surgeon-General BABTIE and Fleet-Surgeon WHITELEGGE also spoke.

DERMATOLOGY.

WEDNESDAY, JULY 24TH.

President, Professor W. G. SMITH (Dublin).

The PRESIDENT opened the session with an address on

Physics and Biochemistry in Relation to Dermatology.

He said that physical science had recently enriched dermatology with several indispensable methods of diagnosis and treatment, radium and radio-therapeutics, the Finsen light, high-frequency currents, cataphoresis, and CO_2 snow. He referred to the light thrown on balneology by the discovery of radium emanations in certain mineral waters which might be lost when the waters were stale from bottling, transport, and storage. Biochemistry had given us light on immunity through a knowledge of the influence of colloids. He discussed adsorption, which he defined as "the condensation or concentration of a substance upon the surface of another substance in a different 'phase'—for example, of a gas upon a solid, of a liquid upon a solid, or upon another liquid." He instanced its application in dermatology by the fact that if a soap was dissolved in much water it was partially hydrolysed into fatty acid or an acid salt and free alkali. When this hydrolysed solution, as in washing, was applied to the skin, the fatty acid was selectively adsorbed by the skin—that is, condensed or concentrated on its surface. Then the remaining solution underwent further hydrolysis, more alkali split off, and so the

process might go on until equilibrium was established. The process was also made use of in dusting powders, &c.

Dr. ARTHUR WHITFIELD (London) then opened a discussion on

Acne and Seborrhœa, their Causation and Treatment.

Dr. Whitfield provisionally defined seborrhœa as "a secretion which leads to pathological complications." Although seborrhœa might exist without acne, he said, there was no well-developed case of acne in which seborrhœa was not present. Among the causes he mentioned adolescence, diet—especially the ingestion of quantities of starchy, sugary, or fatty foods—dyspepsia, a hot moist atmosphere, and excessive clothing, particularly when woollen and worn next to the skin. The sequence of events in acne was (1) seborrhœa; (2) the production of a horny plug in the mouth of the pilo-sebaceous follicle—the comedo or blackhead; and (3) suppuration, either superficial or deep. The lesions must be studied both by the microscope and by culture. In the comedo there was no surrounding inflammation, but there were abundant colonies of Sabouraud's micro-bacillus. A smear of the expressed comedo showed almost a pure culture of the micro-bacillus with a few staphylococci and bottle bacilli. Culture in air gave rapid growth of staphylococci with no growth of micro-bacilli, while emulsification of the comedo and culture anaerobically gave large colonies of the micro-bacillus and small colonies of staphylococcus. From this and other observations he concluded that the genesis of acne was: (1) seborrhœa, a non-bacterial abnormality; (2) comedo formation due to infection with Sabouraud's micro-bacillus; (3) suppuration around the comedo due to the staphylococcus or other pyogenic organism. The treatment consisted in: (1) Removal of the seborrhœa by attention to digestion, diet, and the use of caustics, sulphur, acids, alkalies; (2) expression of the comedo and the use of micro-bacillus vaccines; and (3) surgical measures for the suppuration.

Dr. PHINEAS S. ABRAHAM (London) insisted on the part played by the constitutional element. He urged internal medication to combat it. Uncooked fruit and vegetables should be avoided. The pustule should be opened and touched with a needle dipped in camphophenol. Every comedo should be expressed.

Dr. J. GOODWIN TOMKINSON (Glasgow) said that local treatment was usually successful if supported by constitutional measures. He considered vaccines unnecessary and spoke highly of the results of electrolysis.

A paper followed by Dr. R. SABOURAUD (Paris) on the same subject (translated and read by Dr. R. W. MCKENNA). Dr. Sabouraud defined seborrhœa as sebaceous hypersecretion. There was only one form—viz., seborrhœa oleosa; seborrhœa sicca had no existence. The demodex folliculorum did not not appear to play any part other than that of a carrier in many skin diseases, and it without doubt carried the micro-bacillus. He adduced reasons for thinking that there was a very important relation between the internal secretions of the sexual glands and the development of seborrhœa. Pityriasis simplex (seborrhœa sicca) was not of the same nature as acne and seborrhœa, but appeared to be caused by the spore of Malassez, a blastomycete, and likewise was doubtless influenced by puberty. Steatoid pityriasis and micro-bacillary seborrhœa oleosa of the scalp were always accompanied by a chronic and progressive alopecia, differing in form, frequency, and severity, according to sex, a further proof of the part played by the sexual glands; moreover, the author's investigations in Constantinople and Cairo enabled him to confirm the statement of Aristotle, that baldness did not occur in eunuchs. The acne of involution also confirmed this view. Wright's inoculation with dead micro-bacilli had not given appreciable results in his hands.

Dr. LESLIE ROBERTS (Liverpool) considered seborrhœa to be essentially epithelial hyperplasia occurring under the influence of some chemical substance in the body, and coinciding with the prevalence of sexual activity. He attributed the clinical features of acne to fermentation caused by the micro-bacillus and micrococcus albus.

A vote of thanks to Dr. Whitfield was proposed by Sir MALCOLM MORRIS.

Dr. J. GALLOWAY (London), in seconding it, said that Indian students were much more subject to acne in London than at home, probably in consequence of the English moist climate.

Dr. NORMAN WALKER (Edinburgh) emphasised the importance of general treatment, but agreed with Dr. Whitfield on the value of vaccine treatment, recommending doses of 150 millions and upwards.

New Inventions.

NEW MASTOID FORCEPS.

THE small instrument illustrated in the accompanying

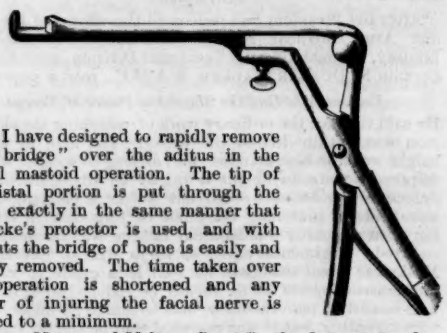


figure I have designed to rapidly remove the "bridge" over the aditus in the radical mastoid operation. The tip of the distal portion is put through the aditus exactly in the same manner that a Stacke's protector is used, and with two cuts the bridge of bone is easily and rapidly removed. The time taken over the operation is shortened and any danger of injuring the facial nerve is reduced to a minimum.

Messrs. Mayer and Meltzer, Great Portland-street, London, W., are the makers of the instrument.

J. GAY FRENCH, M.S. Lond., F.R.C.S. Eng.

Harley-street, W.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Paul Schroeder, assistant to Professor Bonhöffer, has been recognised as *privat-docent* of Nervous Diseases.—*Beyrout, French Faculty:* Dr. D'Auber de Peyrelongue, professor of Physiology, Hygiene, and Forensic Medicine in the Principal School of the Naval Medical Service, Bordeaux, has been appointed to the newly established Chair of Physiology and Histology.—*Bordeaux:* Dr. Sabrazès, *agrégé*, has been promoted to the chair of Pathological Anatomy, in succession to Dr. Coyne, retired; Dr. Barthe, *agrégé*, has been appointed Adjunct Professor.—*Bologna:* Dr. P. Palagi has been recognised as *privat-docent* of Orthopædic Surgery.—*Breslau:* Dr. F. Röhmann, extraordinary professor, has been promoted to an Honorary Professorship of Physiology.—*Budapest:* Dr. J. Antal, *privat-docent* of odontology, has been granted the title of Extraordinary Professor.—*Halle:* Dr. Julius Bernstein, who was formerly professor of physiology, has just celebrated the jubilee of his doctorate. A portrait of the eminent professor has been subscribed for by old pupils and placed in the Physiological Institute.—*Heidelberg:* Dr. B. Baisch has been recognised as *privat-docent* of Surgery.—*Königsberg:* Dr. F. Schieck, of Göttingen, has been appointed to the chair of Ophthalmology, in succession to Dr. Krückmann.—*Lille:* Dr. Bué, *agrégé*, has been promoted to the chair of Midwifery and the Hygiene of Young Children.—*Marburg:* Dr. M. Schenck has been recognised as *privat-docent* of Physiology.—*Modena:* Dr. G. Zirconi, of Florence, has been recognised as *privat-docent* of External Pathology.—*Moscow:* Dr. A. Starkoff, *privat-docent* of Operative Medicine, has been promoted to an Extraordinary Professorship.—*Palermo:* Dr. E. Luna has been recognised as *privat-docent* of Histology.—*Pavia:* Dr. G. Stradiotti has been recognised as *privat-docent* of Internal Pathology.—*Prague (Bohemian University):* Dr. O. Leser has been recognised as *privat-docent* of Ophthalmology, and Dr. J. Novotny as *privat-docent* of Hygiene.—*Rome:* Dr. Beno Cicaterri has been recognised as *privat-docent* of Internal Pathology.—*Strasburg:* Dr. D. von Tabora, *privat-docent* of Medicine, has been granted the title of Professor.—*Vienna:* The following have been granted the title of Extraordinary Professor: Dr. F. Pimeles, Dr. E. Schwarz, Dr. H. Salomon, and Dr. W. Türk, *privat-docenten* of Medicine; Dr. P. Clairmont and Dr. K. Ewald, *privat-docenten* of Surgery; Dr. F. Kermauner and Dr. J. Neumann, *privat-docenten* of Midwifery and Gynæcology.

THE LANCET.

LONDON: SATURDAY, AUGUST 17, 1912.

The National Insurance Act.

DURING the past week few developments have occurred in the extraordinary situation wherein the public and the medical profession are placed by the absence as yet of any provision for securing to insured persons under the National Insurance Act the benefits due to them in so short a time. Among the declarations of policy which marked the recent meeting of the British Medical Association was one in which the Association called upon all its members, who are members of Advisory Committees in connexion with the National Insurance Act, to withdraw from these bodies—a declaration which followed directly upon the decision to break off further negotiations with the Commissioners. We cannot help feeling that here there was a fault in logic, for it was with the Commissioners, duly informed upon medical affairs, and not with the Commissioners bereft of professional aid, that the future contest would surely be. We are not surprised, therefore, to find that certain medical members of the Advisory Committees are unable to see how the absence of medical men from the counsels of those bodies could be expected to help the medical profession in the numerous struggles that lie ahead. And surely, whatever be the issue of the existing situation, the medical voice on the Advisory Committees must be an influence for good, while the fact that it will still be heard cannot be interpreted by anyone conversant with the circumstances as indicating any weakening in the position of the practitioner.

That otherwise the position remains unchanged shows that the resolution of the medical profession, in spite of certain minor disagreements in opinion, is the same; they are awaiting the offers that will be contained in the regulations shortly to be issued with an accompanying memorandum upon medical remuneration, or with a schedule of figures indicating precisely what the Commissioners intend medical remuneration under the Act should be; but they do not display any sanguine expectation of finding these offers satisfactory or such as will lead to any general departure from the attitude at present adopted. On the other hand, there seems a disposition on the part of the clubs to use the period before the appearance of the regulations in asserting strongly their views. We observe, for example, that Brother WILLIAM MARLOW, Parliamentary Agent of the High Court of Foresters, is reported in the *Times* as saying that he was convinced, if medical men refused to work the medical benefits portion of the Act other than the part concerned with sanatorium benefit, that the Friendly Societies, upon the Chancellor of the Exchequer handing back to them the money set apart for the scheme, could pool the money, pay medical charges as they arose, and still make a profit. This is a direct claim to be able to secure from the medical profession acquiescence in the old abuses of the club practice system, although it is possible that Mr. MARLOW, despite all that has been written and said on the subject, may still believe that no abuses ever have existed in that system. We call attention to the matter, for it proves that medical aid associations are on the watch to secure again if they can that dominance over the medical profession which they have in many places wrongfully used, and by such activity they justify, almost more than any other thing, the decision of the medical profession not to coöperate in the working of the Act. If the medical profession could but feel certain that the Act in its present form would protect them from the abuses of contract practice, they might be ready to receive other proposals under the Act with greater equanimity. The upheaval of professional life and the risks of great pecuniary loss,—these things are only partly accountable for the way in which the medical profession received the National Insurance Bill from the day of its reading, and for their unwillingness to assist in its working now that it is an Act. The motive principle with the majority has been the desire and intention to revolutionise or get rid of club practice, while the existing constitution of the local Insurance Committees offers insufficient safeguard against a perpetuation of much of the old scandal.

One other thing, besides the purposeful activities of the medical aid associations, is to be kept under strict observation at the present moment, and that is the political bias of those who offer solutions for existing troubles, or who encourage the medical profession to stand firm against the aggressive tactics of Ministers. As we have pointed out over and over again, politicians have attempted to use the medical profession throughout our long struggle with the Chancellor of the Exchequer, and some of these politicians have, curiously enough, been medical men. Nor are they confined to one or other of the great parties; emissaries from each have done their best to make what was an absolutely professional movement in its origin into a matter of political agreement with the Chancellor or of opposition to the present Government. This ought to cease. When there is a Tory technique of asepsis, a Liberal patent for stamping out tuberculosis, or a Home Rule emetic of particular efficacy, then, and only then, can there be any sense in medical men taking purely political views with regard to questions in which the scientific progress of their profession and the medical needs of the public are concerned. It is utterly necessary that medical men should be resolved not to falter in their high resolutions because of their general political sympathy with the powers that are in; equally is it their duty not to maintain an opposition contrary to their reasoning in response to a feeling that by so doing they are hampering those powers.

Report of the Registrar-General for 1910.

IN the seventy-third annual report of the Registrar-General, which has just been published, the important changes foreshadowed in the seventy-second report are not sufficiently advanced for inclusion, consequently the statistical information now presented scarcely differs in arrangement from that contained in the reports of previous years. The work before us forms the last of a remarkable series dating back to the commencement of English registration in 1837—a series which has long been regarded as a model for imitation in the colonies and in foreign countries, its only defect consisting in the fact that the registration districts dealt with are seldom coextensive with the areas for which the data are needed for purposes of sanitary administration. The future reports of the Registrar-General will have regard to administrative areas exclusively, and will embody changes described in the report of 1909, such as the substitution of the international system for the system hitherto employed in the classification of causes of death; the further subdivision of age grouping of the deaths, and their more perfect distribution to the districts in which they occurred. The bulk of the present volume is contributed by the Medical Superintendent of Statistics, but an instructive preface is added by the Registrar-General, Mr. BERNARD MALLET. To this preface we now briefly refer, deferring to a future occasion the consideration of Dr. T. H. C. STEVENSON'S remarks on English mortality and its causes in the year under notice.

From Mr. MALLET'S introduction we learn that the delay in the publication of the present report is due mainly to the pressure of work in connexion with the far-reaching changes alluded to above, and foreshadowed and described in his report for 1909. But he assures us that one of the incidental advantages of these changes is the fact that in future it will be possible to issue the annual report at an earlier date than has been customary hitherto. For many years past the late appearance of the Registrar-General's annual reports has been matter of complaint by medical officers of health, to whom the information contained is indispensable for the composition of their local sanitary reports. On behalf, therefore, of these officers generally we welcome the Registrar-General's promise as to the earlier issue of his reports in future. The complete results of the Census of 1911 have not as yet been published. Nevertheless, they have already been utilised officially for the revision of the estimates of population, as well as of the rates of births, marriages, and deaths for the years 1901–10. The population of England and Wales having increased at a somewhat slower rate in the last intercensal period than it did between 1891 and 1901, the number living in each of these years has been slightly over-estimated, and the corresponding rates have been slightly under-estimated. In the year 1910 the error of estimation was probably at its maximum, and in that year the result of correction is to slightly raise the several rates.

The following are the more important features of the vital statistics now presented. As a result of the Census taken in April, 1911, it has become possible to abandon the estimates of population which had been in use for each year of the previous intercensal period, and to substitute more trustworthy estimates based on the ascertained increase of the population. Estimated on the assumption of uniform increase by geometrical progression, the population of England and Wales in the middle of 1910 is provisionally stated to be 35,796,289. This number has been used in the calculation of the several rates of birth, marriage, and death in that year. The marriage-rate was 15·0 per 1000, being below the decennial average by 0·6 per 1000, but slightly above the low rate of the year 1909. The birth-rate was only 25·1 per 1000, which is the lowest rate on record, and below the average in the decennium 1900–09 by no less than 2·5 per 1000. Once again the death-rate was the lowest hitherto recorded. It was only 13·5 per 1000, being 1·1 below that of the preceding year, and 2·4 below the average in the preceding decennium. The improvement was shared by each sex at every period of life. Infantile mortality likewise showed a further fall on the low rate of 1909. It was equal to 105 in each 1000 births, and was considerably below the rate recorded in any previous year. Among the chief epidemic diseases scarlet fever, enteric fever, and diphtheria (with croup) showed a lower fatality than in any preceding year. Only once previously had a lower mortality from measles, and only twice previously had a lower mortality from whooping-cough, been recorded than in the year under notice. From phthisis and other forms of tuberculosis, as well as from bronchitis, the rates were the lowest on record, whilst a lower rate from pneumonia has not been registered since 1904. Although cancer mortality in the aggregate still showed an increase, the rate reaching its highest point in 1910, it is noteworthy that the increase was limited to males, the rate for females declining. The death-rate from diabetes mellitus has still continued to increase.

Among recent additions to the work of the Central Office, the Registrar-General once more reverts to the difficulty involved in tabulating under administrative areas information which has been collected from different and largely unrelated areas. "It will suffice to say," he remarks, "that if, by a reform of the law relating to registration, the facts dealt with could be collected from the areas for which they are to be presented, the process of tabulation would gain not only in speed, but also to some extent in accuracy." The constantly increasing proportion of deaths registered in institutions for the sick has necessitated the organisation of a system of distributing to their previous residences the deaths of persons dying in such institutions. The method in use depends largely on the co-operation of the county medical officers of health, without which the difficulties of the task would probably have been insurmountable. These officers, however, are to some extent compensated for their assistance, inasmuch as they receive from the central bureau copies of all the information required respecting the areas for which they are responsible; so that a uniform and comprehensive scheme of distribution is now in operation which serves local purposes as well as the

requirements of the General Register Office. In this connexion the Registrar-General records his high appreciation of the help voluntarily rendered him by the county health officers of England and Wales, the amount of which, especially in the larger counties, is very considerable. There is no doubt, we think, that the resulting improvement of the vital statistics of the country will be more than commensurate to the labour expended. The mechanical system of tabulation by cards, which has now been in operation for some months, has already proved of great value, and will render possible the introduction of further improvements in the national vital statistics. Among these, great importance is attached to the system of double classification of causes of death. By this means it will be shown, for example, how much of the mortality returned as due to specific fevers is certified as due to these diseases and how much to their various complications. On the other hand, it will be possible to obtain an estimate of the total number of fatal cases of such diseases as bronchitis and pneumonia, many deaths from which, under the present system of classification by single causes of death, are necessarily referred to the diseases primarily leading to these conditions.

Annotations.

"Ne quid nimis."

CLEAN MILK BY STATUTE.

WE should like to remind the public analysts in the country of the fact that the milk-seller can be punished on its being shown that the milk he supplies is unduly dirty. An excellent lead in this matter was given by the sanitary authorities of Chester and those of the counties of Flint, Denbigh, and Carnarvon some years ago, who obtained a number of convictions based upon the findings of the public analyst. Convictions were obtained in Chester when as small an amount as 2 parts of dirt (which was obviously dung) per 100,000 parts of milk was shown to be present. Elsewhere the limit has been placed at 3 to 4 per 100,000. The prosecutions and fines inflicted have had a very good effect, "as the milk has improved wonderfully in this respect, and it is the exception now to receive a sample containing enough sediment to estimate." Further, "the effect can be seen also on the cows, as the cowkeepers have realised the necessity of keeping the cows clean, and one no longer sees them coming up to be milked plastered over with dung." That is a splendid result of State medicine administration, and we congratulate the authorities concerned, and we should like to see this movement spread to every centre of control. Mr. W. F. Lowe, F.I.C., the public analyst of the city of Chester and of the counties of Flint, Denbigh, and Carnarvon, has set out a method of examining milk by which the dirt may be estimated. His description is given in the *Chemical News* of August 9th. He adopts a sedimentation method. The sediment usually consists of the undigested fibre of the food of the cow, and is mostly broken-down vegetable tissue stained yellowish owing to the presence of biliary colouring matters. In order to prove the presence of bile in the sediment, which is a strong inference of the sediment being dung, Pettenkofer's well-known reaction for the biliary acids was used, in which sugar syrup (preferably glucose) and strong sulphuric acid produce a cherry-red to crimson colour when added to a small portion of the sediment. This method of examination seems perfectly straightforward and is, of course, less complicated than a bacteriological examination for the presence of bacillus coli. It actually finds dung when it is present, and the demonstration is convincing and practical. Then let it be universally applied, and let us at least insist upon getting scrupulously clean milk if we cannot get it actually aseptic.

THE DESTRUCTION OF MOSQUITO LARVÆ.

AMONG the various anti-malaria measures advised by experts mosquito reduction occupies a prominent place, and to effect this reduction it is recommended that complete or partial treatment of the waters in which mosquitoes breed should be carried out by means of drainage, deepening or filling up of marshes and pools, by dragging out water weeds, by "training" the banks of streams, by introducing fish into tanks or pools, and by covering the surface of smaller pools with a layer of kerosene oil. This last-named measure is said to act mechanically by preventing the larvæ from having access to the air, so that in consequence they are soon killed. So far as we know, the efficiency of this procedure has never been called in question until now. But in the *Statesman* of June 6th a paper is published which had been read at Calcutta before the Asiatic Society of Bengal, by Dr. F. F. McCabe, who had for some time been making a series of experiments on the action of larvicides, both in the laboratory and in the field. This observer has come to the conclusion that in India the oiling of pools with kerosene oil is in nine cases out of ten useless as far as the actual killing of any considerable number of larvæ is concerned; and further, it has the disadvantage of killing important allies of man, the fresh water snails, for example, which feed upon mosquito eggs. He compares this in military language to a general who, in the first round with the enemy, shells his own infantry (the water snails), who are unable to take cover, while the enemy (the mosquito larvæ) move their position and take cover as soon as the shelling begins. Dr. McCabe supported his contentions by showing a jar containing many mosquito larvæ, as he says, "all alive and kicking," notwithstanding the fact that for four days the surface of the water in the jar had been covered with a layer of kerosene oil. He pointed out there was enough oil in the jar to cover a pool of some square yards; he had, however, railed off a corner with a piece of floating wood, and to this corner the larvæ at once found their way for air, so that very few of the larvæ died, while, on the other hand, every water snail in the jar had perished. It is, however, admitted that if the surface is completely oiled anopheles larvæ of any size die quickly, though some varieties of culex are very resistant. It had occurred to Dr. McCabe that perhaps some better way of killing the larvæ might be found, and with this end in view he made experiments with a number of substances, mineral and vegetable, which might be thought of as likely to be efficient larvicides. None that he tried killed the larvæ without at the same time destroying the water snails and other living occupants of the pool. The substance which he found in the end most efficacious as a destroyer of mosquito larvæ was a paste made by wetting chloride of lime with common paraffin oil. Once larvæ have stuck their tail-ends, or siphons, through the oil containing chloride of lime, they are thrown apparently into a state of agony, and they do not live many hours afterwards. As this preparation when it comes in contact with fish or water snails kills them, Dr. McCabe advises that its use be largely limited to the treatment of pools containing no fish, badly laid drainage channels, or drain-traps and suchlike. The smell of the paste seems to be abhorrent to the female mosquito, which avoids pools thus treated when seeking a place in which to

lay her eggs. In tanks which contain fish, and where the borders are overgrown with grass and weeds, the use of a brush dipped in the paste and swept round the borders of the tank a few times weekly would in Dr. McCabe's opinion kill large numbers of larvæ. In such circumstances fish remain unharmed, since they swim out to the middle of the tank as soon as the application of the larvicide is begun. Continuing his experiments, Dr. McCabe tried the effect of electricity upon larvæ. With a low tension current of 220 volts applied to the water of a pool some of the larvæ were killed at once, while others "after a few kicks" lay quite quiet. Examination showed that their heads and tail ends were badly burned, and all those thus injured died after a few hours. This procedure, like those previously mentioned, has the disadvantage of destroying the other living things in the pool. Dr. McCabe thinks that an instrument might be designed to sweep the sides of all larvæ-containing tanks or pools, thus killing all that came within its radius. He admits frankly that he has not yet found a solution of the difficulty he set out to solve, but he thinks that some increased success in destroying larvæ might be effected by carrying out in suitable places the use of his chloride of lime paste, or by electrocuting the larvæ in the way he had indicated. Dr. McCabe also discussed the prospect of importation of yellow fever into India after the opening of the Panama Canal and drew attention to the grave danger arising from the presence of stegomyia fasciata, the insect carrier of the infection, in such overwhelming numbers in many parts of India.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.

BRIGHT weather favoured the meeting of the Oxford Ophthalmological Congress at Oxford. The programme was of an interesting nature, although a little crowded. It secured, at all events, a busy time for the "congressists," many of whom came from over-seas. American visitors included Dr. Miles Standish (Boston), Dr. H. F. Hansell (Philadelphia), Dr. W. B. Marple (New York), Dr. Andrews (Santa Barbara, Cal.), Dr. Green (Dayton, Ohio), and Dr. W. Likley Simpson (Memphis, Ten.). Canada was represented by Dr. Handford McKee, of Montreal. From the continent of Europe came Dr. H. Coppez (Brussels), Professor Straub (Amsterdam), Dr. Brandès (Antwerp), Dr. van Lint (Brussels), Dr. R. Liebrecht (Hamburg), Dr. Verrey (Lausanne), and others. In the Department of Human Anatomy and Physiology (kindly lent for the purpose by Professor Thomson and Professor Gotch) addresses were delivered by Professor Straub, Dr. Marple, Dr. McKee, Dr. Thomson Henderson (Nottingham), and Dr. S. E. Whitnall (Oxford). All were distinguished by commendable brevity. The Professional Museum contained many objects of interest, chief among which were 250 paintings of the fundi of mammalian and reptilian eyes executed by Mr. A. W. Head. An album which contained photographs of the artist engaged in making sketches of the eyes of the cobra, the boa constrictor, and other fearsome animals excited no little amusement. The exhibits of Mr. H. S. Elworthy, of Ebbw Vale, call for a word of separate mention. They dealt mainly with geological specimens connected with mines and mining. Mr. Elworthy also showed various ingenious methods of measuring light below ground, as well as colour tests for estimating colour in mines. The Commercial Museum contained the latest things in the way of surgical instruments, optical appliances, microtomes, and so forth, exhibited by firms of good standing. The most interesting feature of this department was perhaps Gullstrand's demonstrating ophthalmoscope, an instrument whereby an image of the fundus oculi, singularly free from reflexes, can be readily obtained even by an unskilled observer. A series of clinical cases was shown at the Eye Hospital. An animated discussion on the Nystagmus of Miners, opened by Dr. T. Harrison Butler, of Coventry, took place at the Oxford Eye Hospital. Among the speakers may be mentioned the names of Dr. T. L. Llewellyn (Bargoed), Mr. J. Court (Staveley), Mr. Elworthy, Dr. H. Tomlin (Shirebrook), Mr. A. B. Cridland (Wolverhampton), Mr. J. J. Evans (Birmingham), Mr. R. J. Coulter (Newport, Mon.), Mr. N. C. Ridley (Leicester), Mr. H. H. Folker (Hanley), Dr. S. McMurray (Stoke-upon-Trent), Dr. A. C. Norman (Sunderland), and Dr. Stanley Riseley (Sheffield). The resolution passed was quoted in our last issue, and found nystagmus to be chiefly due to the character of the illumination, while asking for a Departmental Committee to report upon the disease. The official dinner was presided over by the Warden of Keble College, which was the centre of the Conference. Other social arrangements included a garden party at New College and visits to the various colleges. Altogether, a meeting as instructive from the scientific as it was enjoyable from the social side.

TORSION OF THE GREAT OMENTUM.

IN the *Australasian Medical Journal* of May 4th Dr. C. E. Corlette has recorded two cases of a very rare condition—torsion of the great omentum—observed in the Sydney Hospital during 1911. A healthy looking man, aged 40 years, came to the hospital complaining that four days previously while at work he was seized with acute abdominal pain in the lower abdomen, chiefly on the right side. He had never had any serious illness, but had undergone operation for right inguinal hernia four years ago. He had suffered from occasional attacks of "indigestion," but never from anything resembling the present illness. The pain was colicky, and he vomited about half an hour after it began. The bowels had been regular and acted well on the day of onset. After resting the acute pain passed off, but a dull ache and a feeling of weight remained in the right side. On examination the tongue was slightly coated, the temperature was 99·4° F., the pulse 110, and the respirations 20. Over the right lower abdomen there were definite tenderness and some rigidity, which was most marked above, and internal to, McBurney's point. An enema cleared the bowels out, with some relief, but the temperature and pulse remained unaltered. Subacute appendicitis was diagnosed, and under ether an incision was made over McBurney's point and the peritoneum exposed by muscle-splitting. The tissues were found to be œdematous, and owing to adhesions there was difficulty in opening the peritoneum. When this was done dark free blood was encountered, but the appendix could not be found. It had evidently been removed at the previous operation for hernia. A hard mass was felt in the region of the gall-bladder. An incision was therefore made in the right upper abdomen. The mass was found to be a portion of the great omentum which had become twisted on itself three times from right to left. The strangulated portion was of a deep port wine colour and larger than the closed fist with a pedicle of the thickness of a finger. The strangulated portion was ligatured off and removed. There were some slight recent adhesions. Both wounds were closed and recovery was uneventful. In the second case a stout, apparently healthy man, aged 31 years, came to hospital on Nov. 25th complaining of pain in the abdomen. A week previously while in his usual health he was seized with severe pain in the lower abdomen. The pain was aching and caused him to cease work. It gradually diminished and he was able to resume work next day, but after three-quarters of an hour dull aching pain returned and compelled him to lie down. For the next six days the pain came and went at intervals. Throughout the bowels acted regularly under aperients—he was habitually constipated. On the day of

admission the pain became more severe. On examination the tongue was furred, the temperature was 104°, the pulse 120, and the respirations 24. There were slight general distension of the abdomen and marked tenderness and rigidity over the right side, particularly over the iliac fossa. A large enema was given with good results and the pain was considerably eased. On the 26th he felt much better, but there was still slight dull pain. The temperature was 100°, the pulse 104, and the respirations 34. On the 27th the pain was much easier, but the tongue was still furred and the temperature and pulse-rate remained elevated. The rigidity and tenderness were most marked in the right iliac fossa, where a mass of the size of a cricket-ball could be felt above Poupart's ligament. It was very tender, rounded, and indefinitely fluctuating. The leucocyte count was 8914 per centimetre. A suppurating hydatid cyst or appendicitis were suggested. On the 29th under ether an incision was made below the umbilicus. The peritoneum was found thickened and œdematous. On opening it a mass of thick, sodden omentum, adherent to the parietal peritoneum in places, presented. The adhesions seemed fairly recent and were separated. The mass was dark in colour and had a definite pedicle which seemed to have made three complete twists from right to left. The pedicle was divided and ligatured off. There was free bleeding. The stump was returned to the abdomen and gauze packed about it. The wound was closed in layers, leaving the gauze tampon. On the 30th the patient felt well, but there was slight abdominal distension. On Dec. 1st the distension increased and he vomited several times. The gauze was removed and a tube inserted for drainage. The distension further increased, and on Dec. 2nd there was fæcal vomiting and he died. A necropsy could not be obtained, but examination through the abdominal wound showed about 18 inches from the ileo-cæcal valve a double kink of the ileum, with recent blood clot, forming adhesions. The ligatures in the omental stump were firm. Scarcely 100 cases of torsion of the great omentum have been recorded. The great majority have been associated with hernia, and nearly always there have been omental adhesions within the sac and the torsion occurred there. In neither of these cases was there a hernia, though in one it had previously existed. Dr. Corlette is unable to offer any suggestion as to the mechanism by which the torsion was produced. It is noteworthy that in both cases the mass was on the right side and the twist from right to left.

THE EXORBITANT PRICES OF TEMPERANCE DRINKS.

THE premium upon non-alcoholic drinks affords an interesting comment upon the well-meaning efforts of the drink reformer. A pint of "bitter" costs the consumer in most cases considerably less than a smaller draught of lemon squash. We have known, in fact, as much as 8*d.* or even more charged for this, one of the best non-alcoholic beverages, and 6*d.* may be asked for a bottle of ginger-beer or ginger-ale if the circumstances of the sale seem to warrant the charge. This charge is out of all proportion to the intrinsic value of the article, and the margin of profit must be enormous compared with that derivable when a common alcoholic drink, say beer or whisky, is served, as neither of these is supposed to be sold very cheaply. Further, the alcoholic drink includes a duty, the non-alcoholic drink does not. What is the meaning of it? It seems most unreasonable that the person who prefers for perfectly good reasons to slake his thirst with something that is non-alcoholic should be fleeced for his pains. We cannot believe that part of a lemon, a glass of soda-water, and a spoonful or two of sugar can cost at the outside more than 2*d.*, and if that is so a fair charge to the consumer would be 4*d.* or 5*d.* And surely the profit on draught beer or whisky is not more than 100 per cent. We shall doubtless be told that the alcoholic drink can be sold on more favourable terms because the patronage is larger. But the chance of an increased patronage taking place for the non-alcoholic drinks is minimised by charges that are too high. Temperance reformers would assist their cause very materially if they would give serious attention to this question of the price of those beverages which are only special because they are non-alcoholic. It cannot help to swell the ranks of the abstinents when the prices of such drinks are so uniformly high. On the contrary, the fact is a direct inducement to favour the alcoholic drink because this is, as a rule, cheaper and is often served with greater promptitude and less fuss.

THE CAUSES OF POST-OPERATIVE DEATHS.

"THE operation was successful but the patient died" is a phrase with which the modern surgeon is often taunted; and the distinction between *post hoc* and *propter hoc* is one which many casual commentators fail to recognise. A careful analysis has recently been made by Dr. Gustaf Petren in *Allmaenna Svenska Laekaretidningen*, No. 11, 1912, of the material in the surgical and gynæcological hospitals in Lund. His researches deal with the period 1900 to 1910. Of the 5 deaths following 1438 operations for non-incarcerated hernia 2 were due to pulmonary embolism, 2 to pneumonia, and 1 to acute bronchitis. 496 operations for chronic appendicitis were followed by two deaths, both of which were due to pulmonary embolism. 233 cholecystectomies performed for gall-stones were followed by 7 deaths, 3 of which were due to pneumonia, 2 to pulmonary embolism, 1 to coronary sclerosis, and 1 to acute dilatation of the stomach. There were 270 operations for myoma of the uterus with 7 deaths, of which 3 were due to pulmonary embolism, the remainder being traced to pneumonia, injury to the bladder, sepsis, or post-operative hæmorrhage. The mortality, therefore, for operations on non-incarcerated hernia was 0·3 per cent.; for chronic appendicitis, 0·4 per cent.; for myoma of the uterus, 2·6 per cent.; and for cholecystectomy, 3 per cent. In the years 1906 to 1910 8440 operations were performed and 304 post-operative deaths occurred, the death-rate being therefore 3·6 per cent. An analysis of these deaths showed that 162 were due to the illness itself and 26 were due to such complications as phthisis, diabetes, or marasmus. Pneumonia and severe bronchitis accounted for 44 deaths and post-operative sepsis accounted for 24. There were 15 deaths from pulmonary embolism and 12 from faulty technique. Eight patients died immediately after the operation and 10 died from such special post-operative complications as intestinal obstruction. Pericarditis and tuberculous meningitis accounted for 3 deaths. Obviously the 162 deaths are not traceable to the operations performed; in many cases, in fact, they delayed death. The remaining 142 deaths which were more or less directly due to the operations were analysed, with the result that 50 per cent. of deaths following operations for acute disease were traced to pulmonary complications. Of the remaining 50 per cent., half were due to lowered vitality or constitutional disease and half to sepsis or other technical mistakes made during the operation. Of the deaths following operations for malignant growths, 28 per cent. occurred directly after the operation, 28 per cent. were due to pneumonia, and 40 per cent. were due to post-operative sepsis or other faults in the technique. Half the number of deaths following operations for chronic disease were traced to pulmonary complications, the remainder being equally due to constitutional weakness and faulty technique. It was observed

that pulmonary complications were particularly frequent after abdominal operations, and that 40 out of 44 fatal cases of pneumonia or bronchitis followed abdominal operations. This was also the case with 13 out of the 15 cases of fatal pulmonary embolism. As a result of his investigations Dr. Petren concludes that the prevention of post-operative deaths would be furthered by early diagnosis and by early admission to hospital, so that the decision for or against an operation may be made at an early stage of the disease. He also advocates a strict limitation of operations on elderly and feeble patients, and on those who suffer from severe anæmia, cardiac weakness, pulmonary tuberculosis, and diabetes. He also prefers the greatest possible use of local anæsthesia, and the aid of a skilled anæsthetist when general anæsthesia is unavoidable.

ANGIO-NEUROTIC ŒDEMA CURED AFTER THE ADMINISTRATION OF SALVARSAN.

IN view of the frequently somewhat intractable nature of angio-neurotic œdema it is well to draw attention to the report of a case apparently cured by the administration of salvarsan, especially since it appears to be the first recorded case in which that medicament was employed for the disease in question. A brief note on the case will be found in the *Journal of Nervous and Mental Disease* for July from the pen of Dr. Charles W. Burr, professor of mental diseases in the University of Pennsylvania. The patient was a man, 48 years of age, who had had syphilis some eight years previously. A few years later he developed periostitis of the tibia, which proved very resistant to treatment. Thereafter he suffered much from headaches, and a swelling appeared on the left parietal bone which was intensely painful on pressure. He was given mercury, but within a few hours of its administration his tongue swelled so much that it became too large for his mouth and he was afraid he would choke. The sequence of the administration of mercury and the swelling of the tongue occurred so often that the physician finally had to abandon that line of treatment. The same thing happened with potassium iodide, Fowler's solution, and indeed several other drugs. When he came under the observation of Dr. Burr he complained bitterly of intense headache especially at night, and as it appeared to be undesirable to give morphia, of which the patient had had a great deal, it was decided to try mercurial inunction. Within a few hours the tongue had swollen so that the mouth could not hold it. The swelling decreased rapidly, however, and was gone in about six hours. Some days later Dr. Burr tried hydrarg. bichlor., gr. 1/100, three times a day. On the second day the left eyelid rapidly swelled, without pain, and soon after a localised area "like a giant hive" appeared on the dorsum of the left foot. Then the right upper lip also swelled. By this time it was clear that the case was one of angio-neurotic œdema, and it was questionable whether the mercury had anything to do with the appearance of the swellings. The patient continued to have the attacks daily, or every second day, localised indifferently in the tongue, eyelids, scrotum, forearms, and feet. The ordinary treatment for Quincke's œdema was unsatisfactory, and the exhibition of mercury had completely failed to relieve either the headache or the periostitis. Finally, an intravenous injection of salvarsan was given, and that night the patient slept well, and he has slept well ever since—that is to say, for about a year. Within a week the headache vanished, the periosteal swelling disappeared gradually, and there has been no œdema anywhere since the injection. The case is from several points of view instructive. The immediate cessation of the œdema after the administration of salvarsan intravenously is noteworthy, as already remarked. The refractory nature of the syphilitic phenomena as far as mercurial medication was concerned, and their disappearance after the injection of salvarsan, are also points of interest. Dr. Burr states parenthetically that up to the present time his experience has been that salvarsan is most effective in cases of syphilis which do not, though on theoretical grounds they should, improve under mercury.

THE OPERATIVE TREATMENT OF WINGING OF THE SCAPULA FROM PARALYSIS OF THE SERRATUS MAGNUS.

IN 1898 von Eiselsberg, the well-known Viennese surgeon, devised a plan for the operative treatment of scapula alata, which consisted in costo-scapular suture at the inferior angle of the scapula, but the result was not satisfactory, as intolerable neuralgia followed. In a subsequent case the same surgeon had recourse to bi-scapular suture. In 1905 Pierre Duval modified von Eiselsberg's original technique by adding muscular transplantation at the superior angle of the scapula. In 1908 Dr Louis Mencière of Reims further modified the original procedure with surprisingly good results, and in a paper published in *L'Encéphale* for March of this year he gave a *résumé* of his method of particular interest both to the neurologist and the orthopædic surgeon. The case which is there described is that of a youth with paralysis of the serratus magnus and other muscles of the right shoulder girdle, but with good conservation of the arm muscles, especially of those below the elbow. As his trade necessitated his being able to lift his arm above the level of his shoulder the late Professor Raymond suggested surgical interference, and this was undertaken by Dr. Mencière on Dec. 17th, 1908. An incision was made along the vertebral border of the scapula, and the trapezius and rhomboids were divided. The latissimus dorsi where it slips over the inferior angle of the scapula was reflected down, and an incision was carried along the scapular periosteum on the vertebral border. The periosteum was detached round to the costal side as well. The periosteum was then raised off the fifth, sixth, and seventh ribs at a distance of some 9, 10, and 11 centimetres respectively from the middle line, so that the line of attachment of the vertebral border of the scapula might be very oblique from above downwards, thus raising the acromion higher. In Duval's procedure the attachment was made only some seven centimetres from the middle line. By taking three ribs instead of two the final result is in Dr. Mencière's opinion superior to what has hitherto been obtained. The edge of the bone of the scapula was then wired to the ribs, where they were exposed, especial care being taken to avoid pressure on the intercostal nerves. This was effected by stripping the periosteum right round the rib without touching the pleura; as it is removed from the under surface of the rib it takes the intercostal nerve with it. It is desirable to depend for the adherence of the scapula to the thorax less on the wiring than on the formation of a fibrous union, which can be obtained if the arm is fixed in an apparatus for some time after the operation. Accordingly, Dr. Mencière devised a simple orthopædic apparatus which kept the patient's right arm elevated, with his hand resting on the top of his head, and this was kept in position for some 65 days after the operation, when it was removed. The scapula was then found to be adherent to the thorax. The vertebral border was sufficiently oblique; the acromion was raised. Mechano-therapeutic measures were subsequently adopted, and in the course of a few months the ability which the patient showed to raise objects above his head with the affected arm was astonishing. No intercostal pain has occurred. A series of excellent

diagrams and photographs enhance the value of this communication, and in cases where a permanently paralysed serratus magnus entails winging of the scapula and comparative uselessness of the shoulder girdle the surgical proceeding here described should be kept in mind.

FATAL POISONING DUE TO THE USE OF PICRIC ACID AS A DUSTING POWDER FOR A BURN.

IN his well-known work on toxicology the late Dr. J. Dixon Mann stated: "Very few cases of picric acid poisoning are recorded, and none with fatal results." However, since the use of picric acid as an application to burns became popular, many cases have been recorded in which toxic effects were produced. The usual application is a saturated solution (approximately 1 per cent.). The symptoms of picric acid poisoning are rapid pulse, pyrexia, papular or erythematous rash, and yellowness of the conjunctiva and skin. There may be vomiting and diarrhœa. The urine is discoloured and has been variously described as dark red, dark green, or port-wine colour. As long ago as 1903 Mr. A. MacLennan reported in our columns two cases in which toxic effects followed the use of picric acid in burns.[1] In one case the acid appeared to have played a part in producing a fatal result. A saturated watery solution was applied with benefit to a burn from steam so extensive that recovery was very doubtful. After about three days a brilliant red "measly rash" developed. The temperature became high and the urine of a dark-greenish hue, and the patient died comatose. In the other case—burn of the arm and leg—the same rash developed and the general disturbance was extreme. However, these two cases were the only ones, out of many hundreds, in which toxic symptoms were observed. Another case in which severe symptoms were produced was reported by Dr. E. J. Elliot.[2] In the *South African Medical Record* of July 13th Mr. J. A. Mitchell has reported the case of a European girl, aged 2 years and 3 months, who sustained a severe burn of the left foot due to boiling fat. Her mother cleansed the burn and treated it with a dusting powder from a "first-aid" outfit supplied by an agent of the St. John Ambulance Association. The dusting was repeated at intervals for 14 days. Eighteen days after the accident the child was taken to a medical man. The skin of the lower half of the left leg was of a bright yellow colour. There was a large brownish-yellow patch on the right side of the trunk and similar patches over the elbow and knees. The conjunctiva and skin generally had dusky yellowish tinge. The urine was of brownish colour and micturition was frequent and apparently painful. The pulse varied from 100 to 150. The child assumed a frightened look when spoken to even by her mother. There were vomiting and severe diarrhœa with yellowish slimy motions. Three days later general erythema developed. The child became stuporous, collapsed, and died on the twenty-second day after the accident. A necropsy was held by the district surgeon, Dr. A. J. H. Thornton. The skin and whites of the eyes showed a yellowish tinge. There was an erythematous rash, with dry, thickened, and slightly scaly skin over the left side of the chest, left leg, and right elbow. The bases of both lungs, the liver, and the spleen were congested. The kidneys were normal. A sample of the dusting-powder used was analysed by Mr. Lewis of the Government Analytical Laboratory, Grahamstown, and found to consist of picric acid 17 per cent. and boric acid 82 per cent. The contents of another tin from a St. John's "first-aid" outfit were found to be badly mixed; lumps of boric acid up to the size of a pea could be picked out, and analyses of samples from different parts of the tin yielded percentages of picric acid varying from 5·9 to 7·1. Picric acid has proved a valuable, and in general a safe, application in the treatment of superficial burns. But the cases mentioned above and the more numerous but less serious recorded ones of toxic effects show that care should be exercised in the case of extensive burns and a watch kept for symptoms. The case just related seems to us an emphatic condemnation of the practice of supplying picric acid in a "first-aid" outfit for the use of the public. We notice that a 1 per cent. solution is recommended by His Majesty's inspectors of explosives to be kept handy for "first aid" for burns. Probably a single application would be quite free from danger, but the proclivity of some of the laity for amateur doctoring is well known, and having learned from this recommendation that picric acid is a "good thing for burns," they may, as in the case reported above, continue the treatment. It seems to us that a warning of some kind should be given on the label of the bottle.

[1] THE LANCET, vol. ii., 1903, p. 800.
[2] THE LANCET, April 28th, 1906, p. 1175.

A PECULIAR CONDITION OF THE EARS FOLLOWING BURNS.

A VERY peculiar condition affecting the ears of persons who had suffered from severe burns is described by Mr. R. W. Murray in the July number of the *Liverpool Medico-Chirurgical Journal*. The patients were among the victims of an explosion which took place at some large oil works in Liverpool, the injuries affecting chiefly the face, hands, and arms, and being of the second and third degrees. The ears suffered along with the neighbouring parts, and healing proceeded normally at first. In certain cases, four or five weeks after the accident, when the parts were apparently well, sudden swelling of the whole of both ears occurred. There was little or no pain, but in some cases the onset of the condition was heralded by some burning or tingling sensations. Incision into the swollen parts caused escape of serum, but little relief. There was no suppuration and the cartilage did not exfoliate—it simply disappeared. The swelling gradually subsided, leaving the ears deformed and shrivelled, resembling the ears of congenital idiots. The lobe of the ear was never destroyed nor was hearing affected. No very satisfactory explanation of the affection is available. Traumatism of the injured parts could be excluded; the burns on the ears had been treated in the same manner as those on the faces of the patients, and the latter healed up well. There was no suggestion of the occurrence of a hæmatoma in any case. Mr. Murray gives photographs of some of the patients both during the attacks and after the shrivelling process had taken place. He believes that the trouble was nervous in origin, and notes that some medical men experienced in asylum work who saw the cases stated that they had seen similar conditions of deformity among the insane following effusion of blood into the pinna. This observation may support the suggestion of a nervous cause at work, and explain to some extent the rapid disappearance of the cartilage, but it throws no light on the origin of the œdema. The cause of the sudden onset of this condition at a period when the parts had seemingly healed satisfactorily and its gradual subsidence with loss only of the cartilage constitutes for the present an insoluble problem.

Dr. J. W. Springthorpe, Melbourne, and Major Charles A. Hodgetts, A.M.S., Canada, have been promoted Knights of Grace of the Order of the Hospital of St. John of Jerusalem

in England, and Lieutenant-Colonel Sir Joseph Fayrer, Bart., late R.A.M.C., has been appointed Knight of Grace.

WE understand that Mr. A. W. Mayo Robson, C.V.O., has decided to retire from practice and for the present to reside in the country.

HOW TO FIT UP A LABORATORY FOR £10.

BY H. WARREN CROWE, M.D., B.CH. OXON., M.R.C.S. ENG., L.R.C.P. LOND.

"The physician of the future will be an immunisator."
—*Sir A. E. Wright.*

THOSE entering the portals of the medical profession are frequently warned against an overdependence on laboratory diagnosis to the exclusion of a careful study of the clinical signs and symptoms of disease, and there is no doubt that the man who omits to make full use of his powers of observation will never properly develop them. His patients and his career will suffer. It must, however, be acknowledged that laboratory methods when applied to exact diagnosis are daily becoming of great use to the discriminating physician, and with the advent of vaccine treatment the laboratory has assumed an importance far greater than ever before. Yet frequently one hears complaints about work done in laboratories. Vaccines do not do what is expected of them, or do a good deal more than is required of them, greatly to the detriment of the practitioner and his reputation.

Present State of Affairs.

Now, it is one thing to call for the aid of the laboratory to assist to settle a difficult point in diagnosis, or to confirm a suspicion, but quite a different matter when the worker in the laboratory is not only asked to prepare the proper vaccine for resisting disease, but is also expected to give exact instructions for the use of that vaccine in a case which he has never seen and of the symptoms of which he has but the haziest notion. Nor can it be denied that as a rule the man whose whole work is in a laboratory is not equipped with the necessary training for carrying out the actual treatment of the patient, so that, even if he had the fullest opportunity for investigating the case, his judgment might easily be at fault; yet at the present day the bacteriologist is constantly asked to prepare vaccines in ignorance of much that might help him, and to issue instructions which are in many cases followed blindly by the medical man who uses the vaccine, sometimes with good luck and success and sometimes with the reverse. It is unreasonable to expect the medical man to do otherwise than follow the instructions, for his patient would object to paying for expert advice which is only disregarded, and he himself would argue that his own judgment was more likely to lead him astray than that of the bacteriologist accustomed to such matters.

There is, then, an obstruction in the way of the patient always getting the best possible result from vaccine treatment—an obstruction for which no individual blame attaches, but for which it seems the system of complete specialisation is responsible. The brain of the bacteriologist and the brain of the clinician do not sufficiently amalgamate. Between these two a sound judgment is difficult to come by. The result is that apart from the harm done to the patient, or at any rate the failure to do a possible good, the reputation of vaccines suffers, and that method of treatment tends to fall into disrepute. To anyone who uses vaccines to any extent such a consummation would, indeed, be a disaster, for without doubt by their use the successful cure of many hitherto incurable complaints can be achieved.

Something ought to be done to remedy this state of affairs, and it is clear that the solution lies in the bringing the minds of the bacteriologist and of the practitioner more into touch with each other, so that their respective points of view may not be so far apart as to be irreconcilable. For the bacteriologist alone to change and obtain a thorough clinical experience would not meet the case, for the medical man in charge of the treatment would be no nearer the proper understanding of his patients' requirements. The best way out of the difficulty is for the medical man to have a first-hand, practical knowledge of bacteriology, and to make use of his knowledge constantly in his own laboratory. Nor need the workers in the big laboratories fear that even if every medical man in the country had his private laboratory their position would suffer, for if vaccine treatment were more general the need for expert advice above and beyond the ordinary routine work would be constantly in demand.

The obvious wisdom of every medical man being taught in his school bacteriology and the groundwork of vaccine therapy, before he is qualified, has been emphasised by many writers on the curriculum, but until the new generation of bacteriologists arises, some means is necessary to bring the present-day practitioner into touch with modern aspects of bacteriology, both theoretically and practically. True, the greater number of our large medical schools provide post-graduate courses for medical men in practice, but very few men, comparatively speaking, avail themselves of this opportunity. The prospect is not sufficiently attractive. If the time, expense, and loss consequent on leaving a practice for a month are taken into consideration, it is difficult to see how, by spending that period in a laboratory learning intricate technique, any adequate *quid pro quo* accrues. Somewhat naturally the practitioner reasons thus: "What is the use of my incurring this expense in order to obtain skill in an art which I cannot afterwards afford to keep up? I shall not have the time to spend on it, nor yet the money to set up a laboratory." But let us see whether in fact the practitioner's ratiocinations are justifiable. As to the time to spare for the work, most men in private practice (excluding perhaps contract practice) could certainly find time to spend on a hobby, and I venture to think that to the majority of men who took up bacteriology seriously, the study would very soon become a most entrancing hobby. But the expense is a matter that certainly requires more consideration. Going into one of the large London laboratories, the uninitiated would get the impression that a large amount of money was necessary to set up a private laboratory, but with careful management it is not so, for it is quite possible, as this article is intended to show, to set up for a sum less than £10 a perfectly efficient laboratory, in which all the simpler vaccine technique can be performed. The only item excluded is a microscope. But this most medical men already possess, and as long as it is fitted with a good oil immersion lens and condenser, its particular shape and form do not much matter.

Apparatus Needed.

The necessities for a modern laboratory dealing with the bacteriology required for vaccine therapy may be grouped roughly under the following heads: (1) incubators; (2) sterilisers; (3) centrifuge; (4) blow-pipe; (5) glassware; (6) rubber material; (7) media; (8) chemicals and stains; (9) syringes; and (10) small sundries. Add to these a good bench to work on, with preferably a north light, a sink, and a slop bucket, and the outfit is complete.

If we turn up the catalogues of firms supplying these things, even the most generously minded aspirant would be rather aghast at the formidable total presented to him. Incubator from £10 10*s*., opsonic ditto £4 10*s*., steriliser £3 10*s*., autoclave from £10, vaccine steriliser £4 4*s*., hot-air oven £3, blow-pipe table £3 10*s*. 6*d*., centrifuge £5 5*s*., media from 3*s*. 6*d*. to 6*s*. per dozen, oil steriliser £2 2*s*., and so forth. With a little care it is wonderful how perfectly efficient substitutes at a small fraction of the cost can be made to do duty for each of these expensive items. The writer, be it understood, in no way claims originality for any of the ideas now following, many of which were suggested to him by Dr. J. Freeman, of St. Mary's Hospital, when he first started his laboratory; in fact, most of the apparatus described have been in use in his laboratory for the last five years, though as the work has grown they have given way to larger and more expensive pieces. In like manner the medical man who may start a laboratory on these lines, with just sufficient apparatus for a small amount of work, will find that the extra pocket-money he makes thereby will soon enable him to expand it if he wishes to do so. For incubator, opsoniser, vaccine steriliser, and general steriliser, the thermetot, or wide-necked flask (Fig. 1) made by the Thermos Company at a cost of £1 5*s*., can be very well adapted. To this can be fitted[1] (1) a rubber bung through which opsonic tubes pass; (2) a thermometer (see

[1] Baird and Tatlock can produce these additions to the thermetot for about 17*s*. 6*d*.

Fig. 1, A), bent at a right angle for easy reading; (3) a gauze chamber for inserting in the thermetot to prevent breakage of glass; (4) a stand to hold the thermetot nearly horizontal for opsonic work; and (5) a heavy home-made blanket cover to assist in keeping the temperature equable. It may be noted that 12*s*. 6*d*. can be deducted from this if opsonic index work is dispensed with, as 1. 2, and 4 are not required. For a cheap steam steriliser an ordinary fish kettle, price 3*s*. 6*d*., heated by gas or methylated spirit, can be used, and any local ironmonger will fit this with a tall conical lid, price 2*s*., which effectually carries the water of condensation back into the boiler without allowing it to drip on to the cotton-wool plugs in the test tubes or flasks within. An excellent substitute for a hot-air oven is the cheapest form of baking oven, price 1*s*. 9*d*. Within this a small metal stand can be utilised to raise the metal tray off the floor. The top is perforated to allow the entrance of a thermometer passed through an ordinary cork. All dry sterilising can be done in this. Instead of a blowpipe table, the searcher after economy may substitute an ordinary single-jet benzoline lamp; this will burn ordinary petrol, is very economical, and no trouble to keep in order. It costs 14*s*. The flame

FIG. 1.

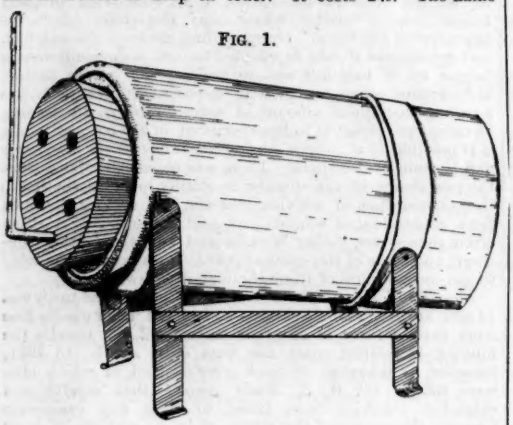
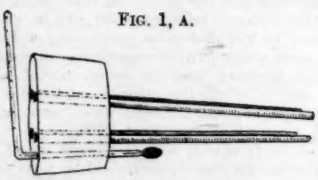


FIG. 1, A.



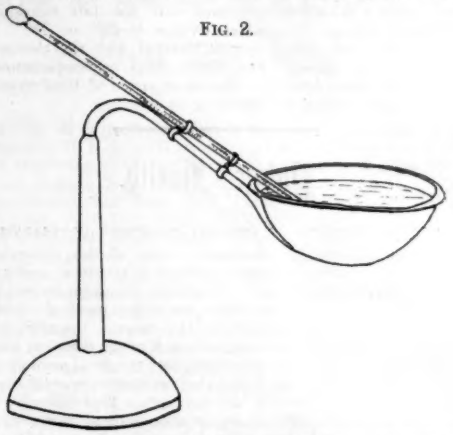
Thermetot with rubber bung, opsonic tubes, thermometer and stand.

should be set to emerge at an angle of from 30° to 45°. All ordinary glass blowing can be done with this. A centrifuge is a necessity in a vaccinist's laboratory. A hand centrifuge, which will do all that is required, can be obtained for the sum of £1 10*s*., and that is the price allowed; but probably the one luxury that will best repay its value, both in temper and in time, is a water centrifuge, provided high enough pressure can be obtained. This costs £5 5*s*., and if included in the budget would raise the cost of the laboratory to £13 14*s*.

As regards media, the preparation known as sol. media provides very cheaply the necessary culture tubes. One pays 8*s*. for sufficient to fill 100 agar tubes, instead of from 3*s*. 6*d*. to 6*s*. per dozen tubes ready filled. The vaccine syringe is rather an expensive, though necessary, item. They range in price from 4*s*. 6*d*. to 12*s*. 6*d*. One has been chosen for this laboratory, price 7*s*. 6*d*.

To sterilise syringes hot oil is undoubtedly the best method, and a home-made article with a spirit lamp serves the purpose admirably. A kitchen soup-ladle is bent to a recurved angle, and the handle is supported in a hollow metal shaft set in a solid heavy base. A thermometer can be tied on this handle, which will rest in the oil. Fig. 2 will make the apparatus plain. There are a few odd things, such as jam jars for pipettes, cigarette tins for cultures, and pickle jars, against which I have put no price, as they can probably be obtained free from the commissariat department and smoking room in every household. Finally, before setting to work, the entirely uninitiated but would-be vaccinist must undergo instruction, and there are very few who,

FIG. 2.



Oil steriliser for syringes made from a bent kitchen soup ladle fixed in a heavy upright metal stand.

given some training in bacteriology, cannot rapidly pick up the elements of the technique if they will but take the trouble to practise in some laboratory devoted to inoculation work.

In conclusion, the writer hopes that this short practical description of the poor man's laboratory may induce some to alter their minds who have felt that the question of cost would for ever prevent them indulging in a private laboratory. Appended is a complete list, with approximate cost, of all the items required.[2]

List of Requirements.

	£	*s*.	*d*.
Incubator, steriliser, opsoniser (thermetot) (Fig. 1) ...	2	2	6
Steam steriliser (fish kettle with conical lid)	0	5	6
Centrifuge	1	10	0
Baking oven (for hot-air sterilisation)	0	1	9
Pair of scales and set of French weights	0	7	6
Two thermometers	0	5	0
Oil steriliser (Fig. 2)	0	3	0
Vaccine syringe	0	7	6
Bunsen burner	0	1	9
Rubber tubing, 5 ft., assorted	0	5	0
Spirit lamp	0	1	3
Glassware—	*s*.	*d*.	
Tubing, three sizes, 5 lb.	3	9	
1 gross test tubes	5	6	
2 gross microscope slides	6	0	
1 doz. watch glasses	0		
100 c.c. measure	1	1	
3 doz. vaccine bottles	6	0	
1 doz. drop bottles	2	4	
½ gross vaccine bulbs	2	6	
Flasks, beakers, funnels (as required) ...	12	6	
3 Berlin basins	1	0	—2 1 2
Chemicals and stains			0 10 0
Sol. media for 100 agar tubes			0 8 0
Photographic tray for lysol			0 1 6
Cotton-wool, 2 lb.			0 1 10
Platinum wire, 6 in.			0 4 6
Plasticine			0 1 0
Filter paper			0 1 0
Emery paper			0 0 2
Glass-cutting knife and files			0 2 2
Grease pencil			0 0 5
Rubber teats and vaccine caps (1 doz. of each)			0 3 6
Bottle of tuberculin			0 8 0
Bottle of killed tubercle bacilli			0 5 0
			£9 19 0

Appendix.

Practical directions for using thermetot.—The thermetot can be used: 1. For incubating cultures. Fill the flask nearly

[2] If increased funds are available the most useful addition to the laboratory as described would be an incubator for cultures. Price up to £10 10*s*.

full with water at 42° C., place culture tubes inside, with well-fitting rubber caps, and shut down, stand upright in the blanket bag; the temperature will not drop below 30° C. in 24 hours. 2. For sterilising vaccines. Temperature 62°—1 hour; temperature will not fall below 58°. 3. As an opsonic incubator. Water at 38° or 39°. The plug with metal tubes is now inserted and the thermetot placed on its stand. The slight drop in temperature is practically immaterial over this short space of time required —it amounts to about 0·25°.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

County Borough of Southport.—One of the commonest difficulties in efficient municipal meat inspection, under the present law, is the presence of private slaughter-houses just outside the borough boundaries, for which meat of doubtful quality is sent in dressed to the town. Usually these slaughter-houses are in rural or small urban districts where there is no trained meat inspector, and the local authority is unable or unwilling to incur the expense of special supervision in the interests of the borough. This difficulty has been got over in Southport by an arrangement under which the borough meat inspector is appointed an additional inspector by the West Lancashire rural district council. In 1910 the borough inspector, after this appointment had been made, discovered as many as 23 carcasses totally unfit for human food at a slaughter-house in the rural district, and during 1911 he dealt at the same place with 25 carcasses which had to be condemned. An arrangement of this kind might be advantageous to other boroughs in similar circumstances. Discussing housing questions in Southport, Mr. J. J. Weaver points out that it is a well-to-do modern town and that the character generally of the houses occupied by the working classes is satisfactory from a structural point of view. There is, however, a marked deficiency in number of working-class dwellings, and what accommodation there is is of far too expensive a character. Many classes of the community, such as gardeners, cabmen, certain railway workers, and carters, get wages ranging from 18*s.* to 24*s.* a week, and sometimes less in the slack seasons. If they are to live in the borough they will at best have to find a rent of 5*s.* 6*d.*, and more often from 6*s.* to 9*s.* a week. This leaves a margin on which a man cannot provide a young family with sufficient food, to say nothing of other necessary expenses. Mr. Weaver discusses the causes of these high rentals, which are in part due to large increases in ground rents and in the charges made by the landowners for street expenses. Many builders are said to have left the town as no profit is now to be made on house building, and there seems no chance of private enterprise operating to increase the supply of dwellings and so to lower their price. One firm employs at least 100 men whose families have to live away from Southport solely through the absence of suitable houses. Mr. Weaver considers this state of things is distinctly detrimental to the future welfare and healthiness of the borough. The remedy would seem to lie in the acquisition by the town council, under the Housing and Town Planning Act, of suitable land near the outskirts on which houses for the working classes could be put up and let at appropriate rates. The conditions referred to are no doubt partly responsible for the continued fall in the Southport birth-rate, which has now reached its lowest recorded figure, 15·56 per 1000. The population of the borough continues to increase, though at a much reduced rate, the rise being from 48,083 in 1901 to 51,650 in 1911.

Borough of Ramsgate.—Dr. James Dundas has contributed a report for 1911 which shows a wide comprehension of its sanitary and administrative requirements. Ramsgate is in a satisfactory position as regards its water-supply, sewage, and other important public works, but, like some other seaside resorts of long-established reputation, the town is much too tolerant of minor insanitary conditions which could be removed by the local council if it would show a little more determination and willingness to face the objections of those whose interests are affected. This is notably the case with the milk-supply. In addition to 16 traders, whose principal business is the sale of milk and dairy produce, there are 66 who sell milk, usually over the counter, in small quantities. The latter in three cases keep post offices, two are bakers, 19 are greengrocers, and the remaining 42 are grocers and general dealers. Frequently they have not troubled to register themselves with the local authority as milk-sellers. Usually the churns or vessels containing the milk, if not kept on the counter, are to be found on the floor of the shop, or in passages or living rooms, or other objectionable situations. Nothing is done to keep the milk cool or properly to protect it from the contaminations by the dust, flies, and effluvia to which it is freely exposed. The conditions described are particularly objectionable in a district so much visited by persons with young families and infants. Most of them could be prevented by action of the town council under their regulations, and even if this resulted in the small dealer abandoning the milk business it would be a benefit to the public. More care is necessary also in the storage, handling, and distribution of other articles of food, notably bread, which is often exposed to contamination by dust, soot, and filth of all kinds. Attention is also needed to the neglect of the council's by-law requiring house refuse to be put out in galvanised iron bins with properly fitting lids—a matter which may materially affect the amenities of the town. Overcrowding needs to be watched, and regulations should be adopted to deal with cleanliness in houses let in lodgings and to prevent the use of certain underground rooms for sleeping purposes. In 1911 there was a rather exceptional amount of enteric fever in Ramsgate; 35 cases were reported to have occurred in the borough, while it is possible that others contracted infection in Ramsgate and became ill elsewhere. There was reason to suppose that the prevalence of the disease is mainly to be attributed to the consumption of winkles, mussels, and cockles obtained from contaminated sources and sold in the town. Visitors often themselves gather winkles and mussels on the foreshore, and some of the cases appear to have been attributable to the consumption of these shellfish in a raw state.

Borough of Barnstaple.—The population of this town was 14,484 at last year's Census. It has not been wholly free from enteric fever in any year since 1902, but usually the number of notified cases has been quite small. In 1911, however, as many as 49 cases were notified, of which nine were fatal. Dr. H. C. Jonas reports that careful and extended inquiries have failed to show any connexion between the cases and the eating of ice-creams, shellfish, or fried fish, that water or milk infection can be excluded, and that there are no circumstances suggesting a carrier infection. The most noteworthy circumstance in connexion with the outbreak, however, was the occurrence of cases in four periods, in each of which the infection of those attacked was probably contracted about the same date—namely, June 25th, August 2nd, August 27th, and Sept. 24th. Each of these dates corresponded fairly closely with the break up of a drought, and on two occasions was characterised by a very heavy rainstorm. There are numerous conditions in Barnstaple which would lead to the contamination of soil in the neighbourhood of houses, while sudden storms, such as those referred to, cause an outflow of sewage from the manholes of certain sewers to take place and thus may lead to infective matter being brought to the surface. The facts given in the report are not sufficient to prove the operation of soil infection in these circumstances, but the coincidence deserves noting and might usefully be looked for in other districts. Since this report was written an inquiry into the prevalence of enteric fever in Barnstaple and the sanitary condition of the town has been made for the Local Government Board which may throw further light on these questions. In reporting on inspection of midwives Dr. Jonas refers to the fact that trained midwives are becoming more and more inclined to act as monthly nurses rather than midwives, transferring their practice from the poorest class to those who are more well-to-do, so that there is a shortage of midwives available for the poorest class. It will be interesting to see whether the position in this respect will be changed by "maternity benefit."

THE HEALTH OF CALCUTTA IN 1911.

The population of Calcutta at the Census of 1911 was found to be 896,067, an increase of 48,271 over that of 1901. The whole of this, and more, has been due to increase in the Hindu element, Mohammedans and other races having decreased in numbers. Dr. T. F. Pearse, in his annual

report, states that the general death-rate was 27·2 per 1000, the previous quinquennial average having been 32. There was a slight increase over the rate for 1910 (which, corrected according to the latest Census, was 26·6), due chiefly to a higher plague mortality. The death-rate for Hindus (27·7) differs little from that for Mohammedans (27); for "non-Asiatics" the ratio was 19 per 1000. (The death-rate for London in 1910 was 12·7, for Liverpool 17·7, for Dublin 19·9; the age distribution is, of course, different.) In this "non-Asiatic" population of 13,335 the chief causes of death were cholera (11 deaths), diarrhœa (10), acute pneumonia (9), dysentery (9), liver abscess (9), broncho-pneumonia (8), apoplexy (8), diabetes (8), and heart disease of all kinds (28). There were 2 deaths from malaria, 1 from heatstroke, and 1 from plague. The infantile mortality rate in 1911 was 251 per 1000, being the lowest for 20 years. In several wards, however, it was very high, being as much as 391 per 1000 in Ward No. 5. Bronchitis, "infantile liver," enteritis, and pneumonia were the chief causes of this high mortality. From epidemic disease generally the city suffered less in 1911 than in previous years. The cholera death-rate (2·1 per 1000) was the lowest for the past decennium. Plague, however, was more severe and extensive than in the year preceding; there were 1851 cases and 1736 deaths, giving a case mortality of 93·8 per cent. and a death-rate of 1·9 per 1000. In 1910 the death-rate was 1·5 per 1000, but the average for the quinquennium had been 2·5. The disease recrudesced in January, rapidly increased in March and April, and then declined slowly until August, when it dropped suddenly. In April there were 597 cases; in December, 13. Only 23 persons presented themselves for inoculation. We are not informed how it was that this means of prophylaxis, which has been demonstrated all over India to be most effective, should have practically ceased to be carried out in the capital of the country. Vaccination has been carried out more extensively than heretofore. A new Act came into operation on April 1st, 1911, by which (*inter alia*), for the convenience of parents and guardians, vaccinated children may be brought for inspection from the seventh to the tenth days after vaccination; the infants must be vaccinated within six months after birth or arrival in Calcutta. The total number of primary vaccinations was 26,715, and the percentage success attained was 99·2. Enteric fever caused 343 deaths, being in a ratio of 0·38 per 1000; the ratio for the previous quinquennium was 0·22, but Dr. Pearse points out that there has been no real increase. It used to be thought that natives of India were not liable to this disease, but it is now known that such is not the case, and by more careful inquiry the diagnosis has become more accurate. Of the total 343 deaths, 314 were among Hindus, and only 12 among Mohammedans; the relative proportion of the former to the latter in the population is, roughly, as 5 to 2. From epidemic dropsy, or beri-beri, only 20 deaths were registered, all due apparently to long-standing sequelæ of the disease, and none being fresh cases. What the health officer calls "the extraordinary theory that this epidemic disease is brought about by an imperfect dietary, in which rice forms the principal part, and in which the rice has been deprived of valuable constituents by polishing," is dismissed very summarily. "The theory ignores the fact that the disease affects all classes, the rich as well as the poor, that it has occurred in outbreaks, and that deficiency of a particular constituent in any one food is made up for in other foods. It is quite unnecessary to discuss this further." It may, however, be advisable to investigate further the true nature of the Calcutta disease. As to the connexion between beri-beri and white rice, the positive experiences of observers in Singapore and the Malay States (especially the case of 300 labourers on road work in 1909) appear to be conclusive. There has been an improvement in the death-rate from malaria in Calcutta for several years past, mostly owing to improvements in drainage. The death-rate for the whole city was 1·4, for the suburban portion 2·3 per 1000. Mosquito brigades have been at work, but "the question is to be considered whether the results are worth all the labour and expense." The mortality from tuberculosis (mostly phthisis) has somewhat increased: the death-rate was 2·2 per 1000; for females it was 3·3, and for males 1·7. These diseases prevail about equally amongst Mohammedans and Hindus, but the Mohammedan females are said to suffer to a high degree; no doubt in-door life has considerable influence. Some excellent instructions in regard to prevention have been prepared, and the health officer has recommended the establishment of a tuberculin dispensary. Dr. Pearse again adverts to the excellent work of the female sanitary inspector; it is to be regretted that the appointment has not been made one of a more permanent character.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 95 largest English towns, having an estimated population of 17,639,881 persons in the middle of this year, 8704 births and 3733 deaths were registered during the week ending Augnst 3rd. The annual rate of mortality in these towns, which had been 11·6, 11·5, and 11·3 per 1000 in the three preceding weeks, further declined to 11·0 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these 95 large towns averaged 11·2 per 1000, and was equal to the average death-rate recorded in London during the same period. The annual death-rates during the week under review in the several towns ranged from 3·7 in Southport, 3·9 in Gillingham, 4·9 in Oxford, 5·1 in Bournemouth, and 5·2 in Acton, to 15·0 in Bury, 15·1 in Wakefield and in Sunderland, 15·2 in Rochdale, 16·6 in Liverpool, and 18·1 in Middlesbrough.

The 3733 deaths from all causes in the 95 towns were 74 fewer than the number in the previous week, and included 444 which were referred to the principal epidemic diseases, against numbers steadily rising from 342 to 417 in the four preceding weeks. Of these 444 deaths, 187 resulted from infantile diarrhœal diseases, 134 from measles, 54 from whooping-cough, 31 from diphtheria, 22 from scarlet fever, 15 from enteric fever, and 1 from small-pox. The mean annual death-rate from these epidemic diseases was equal to 1·3 per 1000, against 1·2 and 1·3 in the two previous weeks. The deaths of infants under 2 years of age attributed to diarrhœa and enteritis, which had increased from 72 to 153 in the four preceding weeks, further rose to 187; 71 deaths occurred in London and its suburban districts, 22 in Liverpool, 13 in Manchester, 7 in Leeds, and 6 in Birmingham. The deaths referred to measles, which had been 148, 156, and 143 in the three preceding weeks, declined to 134, and caused the highest annual death-rates of 1·3 in Hull and in Gateshead, 1·7 in Liverpool, 4·4 in Merthyr Tydfil, and 6·9 in Middlesbrough. The fatal cases of whooping-cough, which had declined from 72 to 44 in the three preceding weeks, rose to 54, and included 14 in London, 5 each in Grimsby, Liverpool, and Manchester, and 3 in Salford. The deaths attributed to diphtheria, which had been 34, 36, and 40 in the three preceding weeks, fell to 31; 9 deaths were recorded in London and 2 each in Bristol, Manchester, Bradford, and Cardiff. The deaths referred to scarlet fever, which had been 27, 19, and 22 in the three preceding weeks, were again 22 in the week under notice, and included 4 in Manchester, and 2 each in London, Birmingham, and Liverpool. The fatal cases of enteric fever, which had been 8, 14, and 10 in the three preceding weeks, rose to 15, of which number 2 were registered in London and 2 in Bradford. The death from small-pox occurred in Bristol.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily increased from 1213 to 1525 in the ten preceding weeks, had slightly declined to 1509 on Saturday, August 3rd; 175 new cases of this disease were admitted to these institutions during the week, against 227, 190, and 222 in the three preceding weeks. On Saturday, August 3rd, these hospitals also contained 827 cases of diphtheria, 687 of measles, 399 of whooping-cough, and 33 of enteric fever, but not one of small-pox. The 969 deaths from all causes in London were 2 fewer than the number in the previous week, and were equal to an annual death-rate of 11·2 per 1000. The deaths referred to diseases of the respiratory system, which had decreased from 131 to 111 in the four preceding weeks, further declined to 105, but were 14 above the number recorded in the corresponding week of last year.

Of the 3733 deaths from all causes in the 95 towns, 178 resulted from different forms of violence, and 355 were the subject of coroners' inquests. The causes of 30, or 0·8 per cent., of the deaths registered were not certified either by a registered medical practitioner or by a coroner

after inquest. All the causes of death were duly certified in Manchester, Sheffield, Leeds, Bristol, West Ham, Bradford, Hull, Newcastle-on-Tyne, Nottingham, and in 70 other smaller towns. The 30 uncertified causes of death included 5 in Birmingham, 4 in South Shields, 3 in Liverpool, and 3 in Preston

In the 95 largest English towns, having an estimated population of 17,639.881 persons in the middle of this year, 7724 births and 3890 deaths were registered during the week ending August 10th. The annual rate of mortality in these towns, which had declined from 11·6 to 11·0 per 1000 in the four preceding weeks, rose to 11·5 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these 95 towns averaged 11·3 per 1000, or 0·1 per 1000 above the average rate recorded in London during the same period. The annual death-rates last week in the several towns ranged from 0·6 in Ilford, 3·9 in Oxford, 4·0 in Ealing, 4·4 in Southport, and 4·8 in Grimsby, to 18·0 in Walsall, 18·1 in Liverpool, 18·9 in Rotherham, 20·9 in Tynemouth, and 22·0 in Middlesbrough.

The 3890 deaths from all causes in the 95 towns last week were 157 in excess of the number in the previous week, and included 495 which were referred to the principal epidemic diseases, against numbers rising from 342 to 444 in the five preceding weeks. Of these 495 deaths, 239 resulted from infantile diarrhœal diseases, 115 from measles, 66 from whooping-cough, 36 from diphtheria, 29 from scarlet fever, and 10 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases last week was equal to 1·5 per 1000, against 1·3 in each of the two preceding weeks. The deaths of infants under 2 years of age attributed to diarrhœa and enteritis, which had steadily increased from 72 to 187 in the five preceding weeks, further rose to 239 last week, and included 108 in London and its suburban districts, 17 in Liverpool, 12 in Birmingham, 11 in Leeds, and 9 in Manchester. The deaths referred to measles, which had been 156, 148, and 134 in the three preceding weeks, further declined to 115 last week, and caused the highest annual death-rates of 2·5 in Rotherham, 3·0 in Barnsley, and 5·9 in Middlesbrough. The fatal cases of whooping-cough, which had been 67, 44, and 54 in the three preceding weeks, rose to 66 last week, and included 14 in Liverpool, 12 in London, and 3 in Newcastle-on-Tyne. The deaths attributed to diphtheria, which had been 36, 40, and 31 in the three preceding weeks, were 36 last week; 9 deaths were registered in London, 3 in Manchester, and 2 each in Cambridge, Birmingham, Middlesbrough, and Rhondda. The deaths referred to scarlet fever, which had been 19, 22, and 22 in the three preceding weeks, further increased to 29 last week; 7 deaths occurred in Birmingham, 5 in London, and 2 each in Brighton, Portsmouth, Liverpool, and Warrington. The fatal cases of enteric fever, which had been 14, 10, and 15 in the three preceding weeks, declined to 10 last week, of which number 3 were recorded in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1482, 1525, and 1509 at the end of the three preceding weeks, had risen to 1559 on Saturday last; 207 new cases of this disease were admitted to these institutions during the week, against 190, 222, and 175 in the three preceding weeks. These hospitals also contained on Saturday last 837 cases of diphtheria, 663 of measles, 402 of whooping-cough, and 34 of enteric fever, but not one of small-pox. The 974 deaths from all causes in London were 5 in excess of the number in the previous week, and were equal to an annual death-rate of 11·2 per 1000. The deaths referred to diseases of the respiratory system, which had steadily decreased from 131 to 105 in the five preceding weeks, further declined to 99 last week, but were 9 in excess of the number registered in the corresponding week of last year.

Of the 3890 deaths from all causes in the 95 towns last week, 181 resulted from different forms of violence, and 390 were the subject of coroners' inquests. The causes of 25, or 0·6 per cent., of the deaths registered were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Liverpool, Sheffield, Leeds, Bristol, Bradford, Hull, Newcastle-on-Tyne, and in 58 other smaller towns. The 25 uncertified causes of death last week included 7 in Birmingham, 3 in Warrington, 2 in Sunderland, and 2 in Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 18 largest Scotch towns, with an aggregate population of 2,182,400 persons in the middle of this year, 1068 births and 560 deaths were registered during the week ending August 3rd. The annual rate of mortality in these towns, which had been 13·6 and 13·1 per 1000 in the two preceding weeks, rose to 13·4 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 13·6 per 1000, against 11·2 per 1000 in the 95 large English towns during the same period. Among the several Scotch towns the death-rates in the week under notice ranged from 2·5 in Motherwell, 2·6 in Clydebank, and 6·0 in Kilmarnock, to 18·3 in Dundee, 18·8 in Perth, and 19·2 in Greenock.

The 560 deaths from all causes in the 18 Scotch towns were 13 in excess of the number in the previous week, and included 64 which were referred to the principal epidemic diseases, against numbers rising from 50 to 66 in the three preceding weeks. Of these 64 deaths, 37 were referred to infantile diarrhœal diseases, 12 to whooping-cough, 8 to measles, 5 to diphtheria, and 2 to scarlet fever, but not one to small-pox or to enteric fever. These 64 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·5 per 1000, or 0·2 per 1000 above that recorded in the 95 large English towns. The deaths of infants under two years of age attributed to diarrhœa and enteritis, which had steadily increased from 9 to 31 in the five preceding weeks, further rose to 37, and included 21 in Glasgow, 3 in Edinburgh, 3 in Dundee, and 3 in Coatbridge. The deaths referred to whooping-cough numbered 12, against 9, 19, and 13 in the three preceding weeks; 5 deaths were registered in Dundee and 3 in Glasgow. The fatal cases of measles, which had been 16, 5, and 12 in the three preceding weeks, declined to 8, and included 5 deaths in Dundee. The 5 deaths attributed to diphtheria were 1 below the average in the four preceding weeks, and comprised 2 in Glasgow, 2 in Edinburgh, and 1 in Paisley. The 2 fatal cases of scarlet fever were registered in Aberdeen and Paisley respectively.

The deaths referred to diseases of the respiratory system in the 18 Scotch towns, which had been 61, 66, and 59 in the three preceding weeks, slightly rose to 62; 26 deaths were attributed to different forms of violence, against numbers decreasing from 30 to 16 in the three preceding weeks.

In the 18 largest Scotch towns, with an aggregate population estimated at 2,182,400 persons in the middle of this year, 1056 births and 560 deaths were registered during the week ending August 10th. The annual rate of mortality in these towns, which had been 13·1 and 13·4 per 1000 in the two preceding weeks, was again 13·4 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these Scotch towns averaged 13·6 per 1000, against 11·3 per 1000 in the 95 large English towns during the same period. Among the several Scotch towns the annual death-rates last week ranged from 3·8 in Motherwell, 3·9 in Kirkcaldy, and 6·5 in Clydebank, to 15·1 in Glasgow, 15·5 in Leith, and 15·8 in Greenock.

The 560 deaths from all causes were equal to the number in the previous week, and included 62 which were referred to the principal epidemic diseases, against 66 and 64 in the two preceding weeks. Of these 62 deaths, 36 were referred to infantile diarrhœal diseases, 11 to measles, 10 to whooping-cough, 3 to scarlet fever, and 2 to diphtheria, but not one to small-pox or to enteric fever.

The 62 deaths from the principal epidemic diseases corresponded to an annual death-rate of 1·5 per 1000, and was equal to the rate in the 95 large English towns. The deaths of infants under two years of age attributed to diarrhœa and enteritis, which had steadily increased from 9 to 37 in the six preceding weeks, numbered 36 last week, and included 22 in Glasgow and 3 in Govan. The deaths referred to measles, which had been 5, 12, and 8 in the three preceding weeks, were 11 last week; 3 deaths were recorded in Glasgow, 3 in Dundee, and 3 in Coatbridge. The fatal cases of whooping-cough, which had been 19, 13, and 12 in the three preceding weeks, further declined to 10 last week, of which number 4 occurred in Glasgow. The 3 deaths

attributed to scarlet fever were equal to the average in the five preceding weeks. The 2 deaths referred to diphtheria were registered in Aberdeen and in Leith respectively.

The deaths referred to diseases of the respiratory system in the 18 Scotch towns, which had been 66, 59, and 62 in the three preceding weeks, were 58 last week; 19 deaths were attributed to different forms of violence, against 16 and 26 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons at the middle of this year, 649 births and 364 deaths were registered during the week ending August 3rd. The annual rate of mortality in these towns, which had been 15·7, 14·5, and 15·2 per 1000 in the three preceding weeks, rose to 16·4 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these Irish towns averaged 15·1 per 1000; in the 95 large English towns the corresponding death-rate did not exceed 11·2 per 1000, while in the 18 Scotch towns it was equal to 13·6 per 1000. The annual death-rates in the several Irish towns in the week under review were equal to 18·1 in Dublin (against 11·2 in London), 13·2 in Belfast, 19·7 in Cork, 16·6 in Londonderry, 19·0 in Limerick, and 9·5 in Waterford, while in the 16 smaller towns the mean annual death-rate was 18·7 per 1000.

The 364 deaths from all causes in the 22 Irish towns were 27 in excess of the number in the previous week, and included 49 which were referred to the principal epidemic diseases, against 34 and 33 in the two preceding weeks; of these 49 deaths, 24 resulted from diarrhœal diseases, 8 from measles, 6 from diphtheria, 4 from enteric fever, 4 from whooping-cough, and 3 from scarlet fever, but not one from small-pox. These 49 deaths from the principal epidemic diseases were equal to an annual death-rate of 2·2 per 1000; in the 95 large English towns during the same period the death-rate from these diseases did not exceed 1·3 per 1000, while in the 18 Scotch towns it was equal to 1·5. The deaths attributed to diarrhœa and enteritis, which had been 11, 17, and 11 in the three preceding weeks, rose to 24, all of which related to infants under 2 years of age; 17 deaths occurred in Dublin. The 8 deaths referred to measles, all of which were registered in Dublin, were one below the average number recorded in the four preceding weeks. The fatal cases of diphtheria numbered 6, against 2 and 5 in the two preceding weeks, and comprised 4 in Dublin and 2 in Belfast. The 4 deaths attributed to enteric fever were slightly in excess of the average in recent weeks, and included 2 deaths recorded in Belfast. The deaths referred to whooping-cough, which had been 5 and 7 in the two preceding weeks, declined to 4, and comprised 2 in Belfast and 2 in Ballymena. The 3 fatal cases of scarlet fever, which showed a slight increase upon recent weekly numbers, were registered in Dublin, Belfast, and Cork respectively.

The deaths referred to diseases of the respiratory system, which had declined from 55 to 33 in the three preceding weeks, were again 33 in the week under notice. Of the 364 deaths from all causes in the 22 Irish towns, 116, or 32 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 16, or 4·4 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 95 large English towns the proportion of uncertified causes of death did not exceed 0·8 per cent.

In the 22 town districts of Ireland, having an estimated population of 1,157,014 persons at the middle of this year, 609 births and 310 deaths were registered during the week ending August 10th. The annual rate of mortality in these towns, which had increased from 14·5 to 16 4 per 1000 in the three preceding weeks, declined to 14·0 per 1000 in the week under notice. During the first six weeks of the current quarter the mean annual death-rate in these Irish towns averaged 14·9 per 1000; in the 95 large English towns the corresponding death-rate was 11·3 per 1000, while in the 18 Scotch towns it was equal to 13·6 per 1000. The annual death-rates in the several Irish towns last week were equal to 15·8 in Dublin (against 11·2 in London), 12·3 in Belfast, 12·2 in Cork, 10·2 in Londonderry, 16·3 in Limerick, and 19·0 in Waterford, while in the 16 smaller towns the mean annual death-rate was 13·9 per 1000.

The 310 deaths from all causes in the 22 Irish towns were 54 below the number recorded in the previous week, and included 39 which were referred to the principal epidemic diseases, against 33 and 49 in the two preceding weeks; of these 39 deaths, 21 resulted from diarrhœal diseases, 9 from whooping-cough, 7 from measles, 1 from scarlet fever, and 1 from diphtheria, but not one from small-pox or from enteric fever. These 39 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·8 per 1000, against 1·5 per 1000 in the large English towns and in the 18 Scotch towns. The deaths attributed to diarrhœa and enteritis, which had been 17, 11, and 24 in the three preceding weeks, were 21 last week, all of which related to infants under two years of age; 13 deaths occurred in Dublin, 4 in Belfast, and 3 in Waterford. The deaths referred to whooping-cough, which had been 5, 7, and 4 in the three preceding weeks, rose to 9 last week, and included 3 in Belfast, 2 in Dublin, and 2 in Limerick. The fatal cases of measles, which had been 10, 8, and 8 in the three preceding weeks, were 7 last week, and comprised 4 in Dublin and 3 in Belfast. The deaths attributed to scarlet fever and to diphtheria occurred in Dublin.

The deaths referred to diseases of the respiratory system, which had declined from 55 to 33 in the four preceding weeks, rose to 41 in the week under notice. Of the 310 deaths from all causes, 105, or 34 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 10, or 3·2 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 95 large English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Staff-Surgeon: H. W. B. Shewell to the *Venerable*. Surgeons: G. B. Cockrem to the *Russell*, on recommissioning; H. W. Nicholls to the *Victory*, additional, for disposal; and F. G. Goble to the *Pembroke*, additional.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel William L. Reade retires on retired pay (dated August 14th, 1912).

The undermentioned Lieutenants, from the Seconded List, are restored to the establishment:—Maurice Burnett (dated July 17th, 1912), William B. Laird (dated July 28th, 1912), Frederick W. B. Skrimshire (dated July 28th, 1912), and Gilbert A. Blake (dated August 1st, 1912).

The undermentioned to be Lieutenants (on probation) (dated July 26th, 1912):—Robert Bernard Price, James Buckley Aquilla Wigmore, Eric Christison Lang, Lieutenant John Hare (from the 1st Northumbrian Field Ambulance, Royal Army Medical Corps, Territorial Force), Edmund Uniacke Russell, Lieutenant William Victor Corbett (from the Royal Army Medical Corps, Territorial Force), Robert Alexander Flood, Pierce Michael Joseph Power, James Laidlaw Huggan, Frank Cuninghame Cowtan, Lieutenant Charles Crawford Jones (from the Royal Army Medical Corps, Special Reserve), Edward Vernon Whitby, George Fredrick Allison, Reginald Edward Porter, Thomas Henry Balfour, Richard Biddulph Phillipps, Lieutenant Robert Glen Shaw (from the Royal Army Medical Corps, Special Reserve), John Eric Hepper, Hugh John Sladen Shields, Alexander Lewis Urquhart, Noel Tancred Whitehead, Henry Forbes Panton, Avenell Frederick Cleeve Martyn, Norman Walter Stevens, Robert Carlyle Carlyle, Lieutenant Leopold Thomas Poole (from the Royal Army Medical Corps, Special Reserve), Arthur Aird Mercer Davies, Leslie Dunbar, and James Chambers Sproule.

Brevet-Colonel C. H. Melville, professor of military hygiene at the Royal Army Medical College, London, has been placed under orders for a tour of service in India during the ensuing trooping season. Lieutenant-Colonel H. I. Pocock has been transferred from the Military Hospital at Sialkot to command the Military Hospital at Muree.

Major F. J. W. Porter, D.S.O., has taken up duty in the

Ninth (Secunderabad) Division of the Southern Army in India on transfer from Bellary, Madras Presidency. Major F. W. Begbie has been detailed to proceed to India by the transport s.s. *Rewa* leaving Southampton on Sept. 12th next, and on arrival will be appointed to the Southern Army for duty. Major E. B. Knox has been appointed to hold medical charge of the 16th (Queen's) Lancers, proceeding by route march from Norwich to Lark Hill Camp, Salisbury Plain, for manœuvres with the Second Cavalry Brigade. Major C. B. Martin, adjutant at the Royal Victoria Hospital, Netley, has taken up duty at the Military Hospital, Cahir. Major F. Harvey has been transferred from the Military Hospital at Okehampton to the Northern Command.

Captain W. W. Browne, specialist in physical training to the Colchester Garrison, has been placed under orders for a tour of duty in India with the Northern Army. Captain F. A. Stephens has been selected for appointment as Specialist in Ophthalmology in the Second (Rawal Pindi) Division. The following officers have been directed to join the Irish Command on completion of the course of instruction for promotion at the Royal Army Medical College, London: Captains P. Dwyer, T. E. Harty, C. H. Turner, and S. C Bowle for duty in the Dublin District; Captains W. F. H. Vaughan and H. C. Hildreth for duty in the Cork District; and Captains J. H. Douglas, A. T. Otway, R. J. Cahill, R. C. Hallowes, and E. B. Booth for duty in the Belfast District. Captain R. V. Cowey has been transferred from the Military Hospital at Tidworth to hold medical charge of Perham Down Camp, Salisbury Plain. Captain H. Gall has joined the Station Hospital at Gharial for duty. Captain M. Keane has been appointed to hold medical charge of the Gordon Highlanders during training with the Eleventh Infantry Brigade at manœuvres on Salisbury Plain. Captain J. McKenzie has been transferred from Windsor to Pirbright. Captain R. K. White, on completion of a course of instruction at the Royal Army Medical College, has been posted to the Eastern Command and appointed to the medical charge of the Military Hospital at Weedon, in succession to Lieutenant C. M. Nichol, who has embarked for a tour of service in Egypt. Captain C. H. Turner has been selected for appointment as Specialist in Operative Surgery to the Dublin District, in succession to Captain W. D. C. Kelly, under orders for a tour of service abroad.

Lieutenant K. Comyn has been appointed for duty at Eastbourne on transfer from the Military Hospital at Shorncliffe. The following officers have been placed under orders for service abroad during the ensuing trooping season: Lieutenants J. S. Levack, W. T. Graham, W. Bisset, T. A. Weston, and W. L. E. Fretz. Lieutenant P. C. Field has been transferred from Bordon, Aldershot Command, to Egypt for duty at the Military Hospital, Cairo. Lieutenant A. S. Heale has taken up duty at Hilsea on transfer from King George's Military Hospital, Cosham.

INDIAN MEDICAL SERVICE.

The King has approved of the promotion of the following officers:—Captain to be Major: James Charles Stewart Oxley (dated Dec. 28th, 1911). Lieutenant to be Captain: Berkeley Gale (dated Jan. 31st, 1912).

The King has approved of the retirement of Major Hubert Malins Earle (dated July 27th, 1912).

Lieutenant-Colonel W. H. H. Robinson, agency surgeon, Bengal Presidency, has taken up duty as Chief Medical Officer in Rajputana and Civil Surgeon at Ajmer, in succession to Lieutenant-Colonel H. R. Woolbert, granted 14 months' leave of absence home from India. Lieutenant-Colonel C. F. Fearnside has been granted six months' combined and special leave of absence home from India.

Major S. Hunt, second-class agency surgeon, has been selected for appointment as Agency Surgeon in Bundelkhand. The services of Major E. L. Perry have been replaced at the disposal of the Government of the Punjab. Major S. R. Christophers has arrived home on leave of absence from India. Major E. R. Rose has been appointed Senior Civil Surgeon at Rangoon. Major G. Tate has been selected for appointment as Staff Officer of Medical Mobilisation Stores in the Seventh (Meerut) Division, in succession to Major W. H. Ogilvie, whose tenure of the appointment has expired. Major C. B. Harrison has received an extension of leave for six months on the recommendation of a medical board.

Captain G. F. J. Harkness has been appointed to officiate as Civil Surgeon at Sukkur in succession to Major C. R. Bakhle, who has been deputed to the Central Research Institute of India at Kasauli on special duty. Captain A. K. Lauddie has taken up duty as Superintendent of the District Jail at Ludhiana in relief of Captain J. G. Swan. The services of Captain C. H. Barber have been placed temporarily at the disposal of the Government of India for appointment as officiating Civil Surgeon at Banda by the Home Department. On the termination of a course of instruction in the prevention of malarial fevers at Amritsar Captain T. C. Rutherfoord, civil surgeon at Bilaspur, has been deputed to the Central Research Institute at Kasauli on special duty. Captain R. T. Wells, plague medical officer at Jullundur, has been granted six months' combined leave of absence home from India. The services of Captain J. H. Burgess have been placed at the disposal of the Government of Bengal for employment as Surgeon to H.E. the Governor of Bengal. The transfer of Captain C. A. Godson from Sibsagar to Gauhati has been cancelled. Captain A. J. V. Betts has been granted 18 months' leave of absence home from India.

TERRITORIAL FORCE.

Royal Army Medical Corps.

4th London Field Ambulance, Royal Army Medical Corps: Captain John Hardie resigns his commission (dated August 14th, 1912).

1st South Midland Field Ambulance, Royal Army Medical Corps: Transport Officer and Honorary Captain George H. Dawes is granted the honorary rank of Major (dated July 1st, 1912).

TERRITORIAL FORCE RESERVE.

Royal Army Medical Corps.

Captain John Wilfred Bird, from the 6th London Field Ambulance, Royal Army Medical Corps, to be Captain (dated August 14th, 1912).

THE TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers of the Territorial Force who have been duly recommended for the same under the terms of the Royal Warrant dated August 17th, 1908:—

Infantry.

10th (Scottish) Battalion, The King's (Liverpool Regiment): Surgeon-Major Charles John Macalister.

Army Medical Service.

Colonel Damer Harrisson, K.H.S. Colonel Charles Pye Oliver, Assistant Director of Medical Services, Home Counties Territorial Division.

Royal Army Medical Corps.

Lieutenant-Colonel Robert Jackson, Commanding the 3rd West Lancashire Field Ambulance, Royal Army Medical Corps. Lieutenant-Colonel Alexander Stevenson Greenway, Commanding the 4th London Field Ambulance, Royal Army Medical Corps (dated August 9th).

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

To the August issue of the *Journal of the Royal Army Medical Corps* Major H. A. L. Howell contributes a little sketch of the life of "John Hunter, F.R.S., Surgeon-General and Inspector-General of Hospitals." It is true, as the writer observes, that many excellent biographies of Hunter already exist, but it is equally true, to quote the words of the article, "no series of military medical biographies could be complete unless it included an account of the life of this remarkable scientist, who was for a time a Staff-surgeon in the army on active service in the field, and later on in life the head of the Army Medical Department." John Hunter, as the late Sir William McCormac pointed out, elevated surgery to the rank of a science, and this brief summary of the life of the father of modern surgery rightfully takes its place among the many interesting sketches of celebrities in the services which appear from time to time in the pages of our contemporary. Lieutenant-Colonel Sir William Leishman, F.R.S., returns to the subject of "Cell-inclusions in the Blood in Blackwater Fever" and places on record the result of his examinations of blood-films. Colonel R. H. Firth adds some recent facts as to the enteric inoculation and the incidence of enteric and paratyphoid fevers in India to the note of this subject which appeared in a previous issue, being impressed with the view that a very close analogy exists between paratyphoid fever and enteric fever both from the clinical

and epidemiological aspects. The provision of shelter for an army in the field is a subject of great interest both from the point of view of assisting in the maintenance of bodily temperature and that of the weight of equipment. The account of "Shelter Huts" written by Captain N. Dunbar Walker will therefore receive the attention which it undoubtedly deserves. The present instalment contains a detailed description of the various shelter tents in use.

ARCHIVES DE MÉDECINE ET PHARMACIE NAVALES.

It is a pity that the Admiralty never publishes any of the reports made to it by the medical officers of ships cruising abroad. We say this after reading in the June number of the *Archives de Médecine et Pharmacie Navales* the account by Dr. Valence, médecin-en-chef de la 2de classe, of the French navy (deputy surgeon-general), and principal medical officer of the squadron, of a most enjoyable three months' cruise from Brest to Martinique, Hayti, Havana, New Orleans, Vera Cruz, Annapolis, and New York. In a style reminiscent of the voyagers of an older day, he describes the towns he visits, notes their general sanitary condition, their water-supply, hospitals, quarantine stations, and tells where bills of health are to be got. By the bye, he seems to have been charged an unusual 8*s.* at New Orleans for the Mexican Consul's *visé* on his bill of health, which men-of-war generally get for nothing. The state of sanitation varied generally with the wealth of the place. In Hayti he was told that there was no yellow fever, only bilious remittent; no typhoid fever, only typho-malarial; and at Vera Cruz they said that malaria was very common, many illnesses which seem to be quite distinct diseases being really masked malaria and only curable by quinine; so we learn that some quite old stories are still going round. He did enjoy a visit to that "Winter Paradise," as the Americans call it, Havana, where they have done away with yellow fever and where typhoid is unknown, and the only danger to life he mentions, being a seafaring man, is the shark. There was a fall of temperature of 30° F. in February between Havana and the Gulf Stream, and New Orleans and the Mississippi-Missouri fed from the snows of the Rocky Mountains. The river water was too muddy to be used for distilling. He admires the ruthless New Orleans Board of Health and the way it destroys bad food, but wishes that it would also forbid oyster-shells to be scattered on the pavements; and he dislikes buildings "gratte-ceil," otherwise "sky-scrapers." He mentions that the Charité Hospital was originally built (in 1832) on the plan of Shrewsbury Hospital. It has been recently quite remodelled, has 800 beds, and is throughout double, with one side for coloured people and one for whites. A sick officer can get suitable accommodation in New Orleans in the Hôtel Dieu, nursed by the sisters of St. Vincent de Paul, for $5 a day; in New York it will cost $7½ if his is a medical, $10 if a surgical, case. Vera Cruz (Mexico) has wakened up, and the now infrequent vultures are no longer the scavengers. The town is healthy, and the French sailors were able to land and play football. The water-supply provided seems ample—50 gallons a head. As it appears insufficient and new works are contemplated, it would be well to search for leaks in the mains. No case of yellow fever has arisen here since 1909. Sanitary inspectors, with right of entry, visit every fever case; if there is albuminuria the medical officer of health is notified and makes the official diagnosis. Mexico city, with 500,000 inhabitants and situated 7000 feet above the sea, has a splendid water-supply and a promenade is arranged over the great covered reservoir. At Annapolis, in the training school for the 800 cadets of the United States Navy, the accommodation was found sumptuous, the food wholesome and abundant, and our author was naturally much struck by the prominence, as everywhere in America, of "pie" on the bills of fare. There are six medical officers doing duty at the academy, but all people sick for over two days are sent to the naval hospital. A case of measles was sent ashore at Martinique; another case developed 22 days later at New Orleans. The daily average sick list of the squadron was 22 in February, 32 in March (cases of bronchitis and severe sore throats are mentioned), but, as is so usual in French reports, no percentage is stated, nor is the total of the force concerned ever mentioned. The same criticism is to be made on the article by Dr. Bourges, médecin de 1re classe (staff-surgeon), on tubercle in the dockyard at Brest; we have figures of numbers attacked, and statements of the "peril" they are to the dockyard, but no attempt to give a proportion or to show if the disease is increasing or diminishing. Of 29 patients sent to the sanatorium at Trébéron[1] in 1909, only two a year later seemed definitely improved. Dr. Coulomb, a surgeon in the navy, has in a few cases found veronal with soda of use in sea-sickness, both in prophylaxis and treatment, but there is no statement of control experiments with other remedies. An article (to be continued) on the ventilation of the cruiser *Kléber*, by Dr. Duranton, médecin principal de la marine (fleet surgeon), goes little further than the very interesting description of the ship.

Correspondence.

"Audi alteram partem."

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—I am requested by my colleagues to send the enclosed resolution for publication.

I am, Sir, yours faithfully,
H. H. MILLS.

St. Mary Abbot's-terrace, W., August 13th, 1912.

Agreed:—That we, the undersigned members of the Advisory Committee appointed under the National Insurance Act, have carefully considered our position and with a full sense of our responsibility are of opinion that for the present it is our duty to remain members of the Committee.

(Signed) CHRISTOPHER ADDISON. HERBERT JONES.
CLIFFORD ALLBUTT. ARTHUR LATHAM.
CLEMENT BELCHER. H. H. MILLS.
C. J. BOND. SHIRLEY F. MURPHY.
JOHN COLLIE. GEORGE REID.
ADAM HAMILTON. JOHN ROBERTSON.
M. ST. L. HARFORD. G. SIMS WOODHEAD.

To the Editor of THE LANCET.

SIR,—I enclose herewith a copy of the letter which I have sent this week to the medical secretary of the British Medical Association in connexion with the request that I should resign my position on the Advisory Committee appointed under the National Insurance Act.

I shall be much obliged if you will kindly find space for it in your columns this week.

As the matter is of general interest, and may expose one to adverse criticism, I am sure you will permit a statement of the reasons which induce me to decline to accede to the request of the medical secretary.

I am, Sir, yours faithfully,
CHRISTOPHER ADDISON.

Briardale-gardens, Hampstead, N.W., August 14th, 1912.

[ENCLOSURE.]

TO THE MEDICAL SECRETARY OF THE BRITISH MEDICAL ASSOCIATION.

DEAR SIR,—I have received your letter and have carefully considered the resolution passed by the Representative Meeting of the British Medical Association at their meeting on July 16th. You quote this resolution and ask me in consequence to resign my position on the Advisory Committee appointed under the National Insurance Act.

I cannot see my way to comply with your request, and perhaps I may be allowed to state the reasons which prompt me to refuse.

In doing so you will, I am sure, acquit me of any unfriendly intention, for you are well aware that in many ways I have spared no effort to serve the Association.

There are some things that are worth the most extreme measures. I for one would use every legitimate means both in Parliament and out in preventing the administration of the medical benefit of 12,000,000 of people being entrusted to hundreds of different societies; not simply because the medical profession object thereto, but because it would be

[1] See THE LANCET, Feb. 5th, 1910, p. 386.

against the best interest of the public health and would hinder the development of a coördinated and properly directed health service for the country.

But what end do we serve by leaving the Advisory Committee? It seems to me that it is our duty, by patient and sensible effort, to strive to use our opportunity to secure that every medical man shall be able to render a willing service under the Insurance Act under honourable conditions and with proper remuneration, and to seek to bring into working harmony the diverse and frequently conflicting and insufficient elements of the medical services of the country.

The interests of our great voluntary hospitals, of medical training and research, are involved, as well as those of the great body of the medical practitioners of the country. In all these things do we not best promote the enduring interests of our profession by making them identical with the public interest?

I should have thought that it was a time in which to seek to secure that the counsels of medical men of sober judgment and of special knowledge should be sought for, not to prevent their being obtained. But you are asking the members of our profession to resign both from the Advisory Committees and from the Provisional Insurance Committees as well. I believe this to be a short-sighted policy, and as one of those who is a free agent, to obey your behest would in my view be disloyal alike to one's citizenship and to our profession.

The British Medical Association itself required that medical men should be appointed on the Advisory Committee and the Insurance Act was amended accordingly. Why? Because this Committee has to advise on the regulations which relate to Medical Benefit and to kindred matters. Several quite friendly meetings have been held, and most of the important points have been discussed before the Commissioners for their guidance in preparing the draft regulations.

The regulations are now being drafted and, I understand, will shortly be submitted to the Advisory Committee for their criticism. You would rightly complain if they turned out to be impracticable or unfair. Yet this is the moment at which you ask us to resign; to leave the work, which at your request we have been afforded an opportunity of doing, when it is at its most important and critical stage. It does not appear to me to be either consistent, dignified, or in accordance with common sense. Surely to leave our posts at this juncture would be to be untrue, not faithful to the cause of our brethren in the profession.

The case with regard to membership of the Provisional Insurance Committees and the administration of the sanatorium benefit is even worse.

Those of us who served on the Departmental Committee on Tuberculosis did all that we possibly could to make the service acceptable to medical men. We accepted almost *in toto* the suggestions sent in by the British Medical Association as to the conditions under which general practitioners should be invited to coöperate. Our proposals in these respects, as well as with regard to the terms of the employment of the tuberculosis officer and with reference to the nature of his special qualifications, have been adopted by the Government Departments and have met with no material adverse criticism. Indeed, it is undeniable that they present a marked advance upon existing conditions. Not long ago men were warned by a special notice in the *British Medical Journal* against applying for these appointments. Now the advertisements are inserted and the appointments are approved. A few weeks since two men who had been appointed in Wales resigned their posts owing to pressure from you. Now these self-same men are permitted to reapply for the self-same posts.

The Association insisted that medical men should be appointed on the Insurance Committees and that a Local Medical Committee should be set up and recognised, and that it should be consulted on all matters touching the employment of medical men. The Insurance Act was amended so as to provide for these things.

At the present time almost the sole business of the Provisional Insurance Committees is the administration of the sanatorium benefit. But you forbid medical men to serve on them. At the same time you state your willingness that they should work the sanatorium benefit. Medical men, that is, are allowed to do the work but are not permitted by you to use the opportunity you yourselves have secured for them for moulding the conditions under which it is to be done.

I am quite unable to understand what your "policy" is in these matters, or how these proceedings are likely to help the profession. To my mind they are more likely to bring us into contempt.

For the first time in any civilised country the State is so encouraged by the advance of medical science that it is prepared to spend huge sums of money in an organised attempt to combat that disease which causes more misery and ruin amongst us than any other, yet the British Medical Association is devoting its influence to prevent medical men from sharing in the guidance and administration of this great and beneficent enterprise, not because they object to the enterprise or to the method of its conduct, but because they have differences on other matters with the established authorities. What a spectacle it is for our fellow-countrymen.

For my part, I am willing to serve on any committee or to work in any capacity in an endeavour to arrive at a fair adjustment of these differences so long as there is any hope of success. If we fail, we shall at least have failed honourably. But I will take no part in a boycott of which I am ashamed.

I am, yours faithfully,

CHRISTOPHER ADDISON.

To the Editor of THE LANCET.

SIR,—As a member of the Advisory Committee (England) appointed by the Insurance Commissioners I have, following the resolution passed at the late Representative Meeting of the British Medical Association, received a letter from the Medical Secretary of the Association asking me to resign my membership of that Committee. In expressing my inability to comply with the request of the Association I have, at considerable length, endeavoured to give some of the reasons which influenced my action; and I thought, perhaps, you would kindly give me space in THE LANCET to shortly restate them.

In the first place, I mentioned that when I accepted the invitation of the Insurance Commissioners to act on the Committee I did so unconditionally, and since serving thereon I have in common with other members of the Committee received every consideration and courtesy from Sir Robert Morant and his colleagues in giving them any advice or assistance it has been in my power to give. Further, in the very important papers relating to medical benefit discussed by the Advisory Committees the suggestions of all the members, and particularly those of the Special Representatives of the British Medical Association, received the most careful attention of the Commissioners. Indeed, whilst I largely agreed with the views put forward by the Association's Special Representatives, on some points (such as rigidly fixing an income limit by regulations) on which I disagreed, I preferred to let their advice be tendered unanimously to the Commissioners.

On the subject of an income limit, I stated that, with satisfactory regulations and with a strong local Medical Committee ("the pivot upon which the whole administration of medical benefit could be made turn"), those insured persons who under Sub-section 3 of Section 15 are "required" and "allowed" by the Insurance Committees to make their own private arrangements, would have preserved to every practitioner nearly every patient he would like to have as private patients outside the Act, "the Addisonian net being wide enough to catch all such fry," and I further instanced the evident desire of the Commissioners to make the powers of the local Medical Committees as wide as possible.

From our discussions with the Commissioners I stated that it seemed evident they had every wish to frame satisfactory regulations on all contentious points, and I thought those regulations would have left the British Medical Association in such a strong position that "it would have practically dominated the working of the medical sections of the Act." Therefore I regretted that "I could not consider as Napoleonic the strategy which has abandoned this advantageous position," and I expressed a hope that the 15 papers issued by the Commissioners to the Advisory Committee would be published and circulated. I also compared the position of those members of the Advisory Committee who were nominated by the Association, and who had promised to resign if called upon to do so, with my position, in which had I acted as desired I should have to be rude and discourteous

to Government officials with whom I had no quarrel. On this point I alluded to the inconsistency of the Association in allowing its members to accept paid appointments in administering sanatorium benefit, whilst they, at the same time, wished to prevent me, in quite an honorary capacity, from giving assistance in framing regulations dealing with the employment of those officers.

I found it necessary to state, as a personal factor, that since free choice of doctor was conceded I had, in the medical and lay press, given the most consistent support to this great measure of social reform; and, further, had the greatest "admiration for the courage and pluck displayed by the Chancellor all through in face of the nefarious attempts made by his enemies to destroy his political career in connexion with this beneficent measure," and for that reason alone it could be easily understood that I would consider myself a despicable character "if I performed the *volte face* the Association wished me to, and put an unmerited affront upon those who so ably administer the Act."

I then recalled the fact that during last year, when the Insurance Bill was before the House of Commons, it was the settled policy of the Association that the terms and method of remuneration should be arranged by the Insurance Committees; and with the Association's approval this suggestion was embodied in the Act. The Association having now apparently departed from this policy indicates a change of front, and this, coupled with the violent and partisan utterances of some of its members, has no doubt largely helped to create the unfortunate impression "in the mind of a considerable section of the community that no Liberal statesman can negotiate with the Association with a certainty of receiving fair play."

I finally give in full the concluding paragraph of my letter:—

> Nevertheless, I have a confident hope that when the Insurance Committees are in a position to offer terms to the profession, a way out, satisfactory to all, will be found. It will no doubt also be found that these Committees (and this is as good as conceded by the Commissioners) will leave the question of the determination of the method of remuneration to the local profession in each area, and also that certain extras—to be definitely embodied in the regulations—will be paid by them. And then, as is likely to be the case, if it turns out that they can offer, say, 7*s.* 6*d.* per insured person (which with all extras would amount to over 10*s.* *per capita*) for domiciliary treatment and medicines, and that they agree to institute a referendum in each area, sending to each practitioner a voting paper arranged somewhat like this:—Which method of remuneration do you prefer: (*a*) Payment *per capita*? (*b*) payment per attendance? And in the event of the majority of practitioners in any area favouring the latter method (*b*) adopting the system of pooling the above amount and dividing it amongst the practitioners according to the work done by each; and if, in addition, this referendum paper contained a further query: (*c*) Are you in favour of dispensing your own medicines, or (*d*) having them dispensed by pharmacists? and in this matter letting each individual practitioner adopt the system he prefers (the whole arrangement to be operative for two years) we should not then be far off a settlement, and the next Representative Meeting would likely not be in such a hurry to slam the door against all negotiations and compromise, as that which lately sat at Liverpool.

In conclusion, I hope that by remaining on the Advisory Committee I shall be able to contribute, however so little, to bringing about some such settlement as that above indicated; and, in common with others who have taken the same course, I cannot consider as a wise policy the abdication of its functions as negotiator for the profession by the Association thus letting judgment go by default.

I am, Sir, yours faithfully,

London, E., August 13th, 1912. M. S. HARFORD.

To the Editor of THE LANCET.

SIR,—If we receive 4*s.* 2*d.* per head from our private clients for all medical services exclusive of confinements, what justification have we for our demand of 8*s.* 6*d.* per head for attendance on the insured people, with the addition of charge for extra services which may run the total claim up to 15*s.* or 16*s.* per head? If we receive 4*s.* 2*d.* per head from our private clients when working on a system and on a scale that we declare to be so far satisfactory that we are furious when Government proposes to disturb us, what ground have we for claiming 16*s.* per head for exactly similar services? The reason, of course, is that the uninsured person only requires 1·5 attendances per annum, whereas the insured (club) person requires 5·0.

It is a fact that the club member throughout the country gets 5·0 attendances per annum, and it is assumed that the person insured under the Act will be equally exacting. The club member and the insured person it is considered will be exactly alike in their thirst for visits. Is the assumption warranted, is there good ground for supposing that a person who, before the Act, was content with 1·5 attendances will at the precise moment of his conversion to the status of an insured person, instantly begin demanding service at the rate of 5·0 attendances per annum? In the report of the subcommittee of the British Medical Association criticising Sir William Plender's report occurs this passage: "It might, indeed, be said that if the Government could guarantee that only an average of 1·8 attendances would be required by an insured person annually, then there might be something to be said for an acceptance by the profession of the 6*s.* which had been offered as medical remuneration under the Act." This admission is very significant. 500 private clients now yield the doctor 500 × by 4½ shillings, or £105 per annum, and 500 insured persons at 6*s.* will yield him £150; but 500 private clients require 500 × 1·8 = 900 attendances in the year, and the moment they become insured clients we are accustomed to expect they will require 500 × 5 = 2500 attendances in the same period. Club members require 5·0 per head and so will insured persons—that is the argument on which the Association bases its claim. Is the claim sound?

What is it that makes 500 private clients so little sick that they require only 900 attendances? What is the nature of the subtle metamorphosis that has taken place in their constitutions at the instant of their transmutation into insured persons? The Registrar-General in cold figures tells us that club members are not more sickly than other folks. But the private client requires only 1·8 attendances—we cannot induce him to take more, alas!—and the club member gets 5·0. If this person is not three times more sickly directly he became insured, then why is it that the doctor increases his visiting pace threefold?

In a recent number of the *British Medical Journal* it was shown that the members of one club actually required 9·42 attendances; in another the attendance was 1·07 per head in 1910, and 1·5 in 1911. In his note upon this club the accountant remarked that "after the doctor threatened to resign, the members gave a promise of greater consideration for the doctor's time before demanding a visit in the future," and adds the laudable comment "the lesson appears to have been taken to heart." Evidently so. When the insured person is brought to a condition in which he possesses a proper respect for his doctor's time—a condition which the private person naturally and instinctively assumes—the attendances required by individuals of the two groups become practically identical in number—1·8 and 1·5 respectively. If the doctor could employ this simple remedy—a threat of resignation—for excessive calls in the instance of one club, why did he not apply it in all the others, and so relieve himself of the hideous burden of 5·0 calls per head? Since he did not, the obvious inference is that he could not. His attitude to the former club was that of dominance—to the other of subservience. When the doctor has absolute control of his patient; when he can be free to visit no oftener than he considers the case needs him; and when he can check unreasonable calls, he is in the habit of visiting his club patient at exactly the same rate of frequency as he does his private patient. We can see that in these circumstances the doctor is sufficient unto himself, and that no Government guarantee is needed.

How shall we explain the extraordinary condition of things where the doctor attends seven, eight, or even nine times a head? Clearly in these cases the club member is the dominant party, and will be ready to threaten the doctor with dismissal from his post of club doctor if he shows signs of slackness of zeal, and how else can he, in the member's view, exhibit zeal but by frequency of visit? He runs himself off his legs in his fretful earnestness to propitiate the tyrant club. How else can he keep off competitors ever eager to snap up his job, his appointment? He dreads comparison disparaging to himself with rivals rejoicing in reputations for colossal activity in visiting.

The explanation, then, of this phenomenon of 5·0 visits lies in the system of club appointments, and it derives nothing of its origin from the system of insurance. The birth and maintenance of the "scandal" lie in the competition for appointments. To obtain a club appointment and to keep it, doctors have to resort to methods that are totally inapplicable to and would be destructive of private practice. Try to imagine a doctor seeking favour with his private patients by the enormity of his bills.

Though the Government clearly could not in verbal form

"guarantee that only an average of 1·8 attendances would be required by an insured person annually," it can do and has done something which closely approaches the thing desired. It has destroyed the club appointment at one fell swoop in giving choice of doctor. Every insured person will now stand to the doctor in exactly the same relation as a private client does in respect to everything that goes to make up that complex entity "the visit." It may be presumed that the doctor attends the private patient no more frequently than the case demands, and when this individual becomes insured not a single factor is introduced which tends to his treatment in any way different to that given him when a private patient. The doctor will not have to ingratiate himself with a club but with an individual. If he fails to please he loses his clients by individuals at a time, quarter day, and not by club fees. As long as he does his duty he is assured of independence of action in the exercise of his personal propensity to visit. Conduct that would deprive him of his place on the panel would cause his name to disappear from the Register. His success in practice with insured persons would rest upon causes identical with those which make for success in private practice. Moreover, the Act abolishes—what an immense boon—the commercial element that obtrudes itself between doctor and private patient. With all the safeguards, with all the protection given him against the malice of malingerers, the doctor can without fear and trembling strictly carry out his duties to patient and State. He can, and is encouraged to, take measures for the prevention of calls upon the sick funds, and upon his time. The test of professional zeal and proficiency will not, as it has been in club work, consist in a high visiting rate, but rather in a low one running with a low death-rate.

I am, Sir, yours faithfully,

West Mersea, Colchester, August 4th, 1912. B. HALL, M.B.

*** Dr. Hall's premises will be challenged at once. He accepts the Plender report in a way that most medical men who have thought about the subject refuse to do.—ED. L.

To the Editor of THE LANCET.

SIR,—It is now known that the medical members of the Advisory Committees are not prepared with any unanimity to resign their positions, but I trust that you will point out that this fact in no way whatever minimises the force of the resistance of the medical profession, especially of the general practitioners, to the attempt being made under the Act to secure their services upon entirely improper terms. If the refusal of medical members of the Advisory Committees to resign their posts should be interpreted by the Chancellor as any sign of weakening in our resolves as a profession, our impending struggle may become more severe; but if the medical members of the Advisory Committees can help their brethren by remaining at their posts they must be right to do so. But can they be of any service to us in that way?

I am, Sir, yours faithfully,

GIDEON GRAY.

*** We have referred to the point in a leading article this week.—ED. L.

INSUSCEPTIBILITY TO VACCINATION.

To the Editor of THE LANCET.

SIR,—Last year I sent some notes to THE LANCET[1] on the case of a young child who was successfully vaccinated after having received a certificate of insusceptibility to vaccination from a medical man who had vaccinated unsuccessfully the infant in "one mark" on three separate occasions. I pointed out the seriousness of these certificates being given after three failures of the operation by "one mark doctors," who unfortunately operate in so many cases. Some medical men on reading the article referred to wrote to me and expressed their opinion that insusceptibility to vaccination was extremely rare. Mr. F. W. Lowndes, of Liverpool, who has had a very large experience on vaccination, wrote: "In my opinion insusceptibility is very rare indeed, and I should require very strong proof to believe it." The vaccination officers for Bristol state that the public vaccinators for that city have practically no cases of insusceptibility.

During the past few months five young people who were emigrating to Canada, and consequently had to be vaccinated, were successfully vaccinated by me. Their ages ranged from 14 to 19 years, and all of them had received certificates of insusceptibility in infancy. The parents of two of them told me that their children had been on each occasion vaccinated in four places. Evidently insusceptibility to vaccination is most rare, and an infant may be insusceptible, and yet the operation may in later years be successfully performed.

It certainly seems to be wiser if we have occasion to give a certificate of insusceptibility to at any rate recommend that, as the child may be susceptible later on in life, the operation should be again performed in a few years' time, or, of course, earlier if a small-pox epidemic should occur.

I am, Sir, yours faithfully,

J. D. STAPLE, M.R.C.S. Eng.,
Public Vaccinator for the Horfield and Redland Districts of the Bristol, August 12th, 1912. Bristol Union.

[1] THE LANCET, Feb. 25th, 1911, p. 505.

THE DIAGNOSIS OF BRACHIAL NEURITIS.

To the Editor of THE LANCET.

SIR,—In a case of neuritis of the nerves arising from the brachial plexus I accidentally observed recently that pressure on the inflamed and tender trunk of the median nerve caused a quivering motion of both upper and lower eyelids on the same side (the left). The same symptom occurred again and again when the pressure was renewed experimentally, and there could be no doubt that the pressure on the inflamed nerve was the cause of the movement of the eyelids. As the neuritis became less acute the effect of the pressure became less marked, and ceased before the tenderness of the nerve had quite disappeared. As I do not recollect seeing any mention of this symptom I think it may be worth recording. In these days when malingering is becoming an art any test of the kind is of some value, and, in any case, the fact that pressure on an inflamed nerve in the arm will cause movement of the eyelids on the same side can hardly fail to be of interest to students of the anatomy and physiology of the nervous system.

I am, Sir, yours faithfully,

August 12th, 1912. HUGH WOODS.

CHOLERA AND PLAGUE IN THE NEAR EAST.

(FROM THE BRITISH DELEGATE TO THE CONSTANTINOPLE BOARD OF HEALTH.)

Cholera in the Turkish Empire.

THE cholera epidemic is still confined for the most part to the southern portions of Asia Minor and the northern provinces of Syria. So far, in spite of occasional false alarms, no case of the disease has been seen in Constantinople, where last year it made its appearance at the end of May, and was fairly severely epidemic through June, July, August, September, and October. Last year, indeed, few parts of the country escaped, whereas this year, as just stated, the disease remains for the present in two relatively limited areas. Unfortunately, the reports received from those areas have been incomplete and sometimes contradictory, the *vilayet* authorities sometimes telegraphing one set of figures and the sanitary officials another. However, the following facts seem to be clearly established.

In Southern Asia Minor cholera has caused a certain, but slight, degree of mortality at Adana, at Mersina, the nearest port to Adana, and in a considerable number of villages near these towns, both inland and along the coast. The labourers on the extension of the Bagdad Railway have continued to suffer to some extent. In Mersina the first case was seen on June 14th, and the disease was still present as late as July 22nd. Other infected villages and towns have been those of Tarsous, Djihan, Sis, Bahtché, Yalinayak, and Ayas. From none of these, however, have high figures been at any time reported.

At Aleppo, on the other hand, there has been an epidemic of more serious dimensions. In my last letter the figures for

Aleppo were brought down to May 24th.[1] Since that date the returns from here have been as follows:—

May 24th to June 1st	12	cases,	11 deaths.
June 2nd ,, ,, 9th	19	,,	18 ,,
,, 9th ,, ,, 16th	53	,,	49 ,,
,, 16th ,, ,, 23rd	75	,,	62 ,,
,, 22nd (*sic*) ,, 29th	69	,,	61 ,,
,, 28th (*sic*) July 7th	79	,,	67 ,,
July 7th to ,, 14th	14	,,	19 ,,
,, 14th ,, ,, 22nd	28	,,	24 ,,

Other places in the neighbourhood of Aleppo have also been invaded by the disease. At Antioch it will be recalled that cholera was present as early as April last. From April 15th to June 10th no cases were reported from here, but on the latter date a fatal case occurred, followed by two more before June 16th; then there occurred 8 cases and 4 deaths between June 16th and 26th, 10 cases and 3 deaths between June 26th and July 4th, and 5 cases with 5 deaths between July 14th and 22nd (from the 4th to the 14th figures are missing). At Marash the figures have been still higher, as follows: from June 9th to 16th, 9 cases, 3 deaths; 16th–26th, 31 cases, 17 deaths; June 26th–July 4th, 40 cases, 21 death; July 7th–14th, 36 cases, 14 deaths; and July 14th–22nd, 36 cases, 14 deaths. Lower figures have been reported from Killis, Gessir, Hesrem, Arka, Harem, and Idlib; and still lower from Aintab, Seranda, Kriqui, and some other places.

At Alexandretta a few cases of cholera, mostly imported, have been seen, and also in the villages along the shores of the Gulf of Alexandretta. Elsewhere in the Turkish Empire the recent cholera record has been limited to the occurrence of isolated imported cases or of doubtful cases, which in some instances have proved not to be cholera at all. Thus, on June 29th a fatal case of the disease, confirmed bacteriologically, was reported from Zahla, a village near Beirût, in a person coming from Aleppo. On July 11th a very suspicious case was landed at Smyrna from an American ship coming from Mersina; the microscopical examination of the dejecta revealed cholera-like bacilli, but the result of further investigation was to show that they were not true cholera organisms. On July 21st two suspected cases, one of which was fatal, were reported from the Jewish quarter of Damascus; and a third person, who was attacked by the same suspicious disease at Damascus, left there for his village, where he died. No bacteriological report on these cases has been received. A later telegram, dated July 27th, states that between the 18th and 23rd of the month 7 cases in all, with 4 deaths, had been recorded in different parts of Damascus, and that on the 27th an eighth case, with all the clinical symptoms of cholera, had been seen. It appears, therefore, to be beyond question that the disease has already obtained a footing in this populous and insanitary town. The pilgrimage of this year has already begun, and there will be considerable danger of the infection spreading by the Hedjaz Railway to Medina and the Hedjaz generally.

On July 23rd a doubtful case of cholera was seen at the village of Idan, near Adalia; the patient has since died. On the same date some suspicious cases of diarrhœa were reported from Calafatly, a village four hours' distant from the Dardanelles. Finally, on July 25th a suspected case was seen at Otourak, in the Kutaia district of Asia Minor, but this has since been declared not to have been a case of cholera.

Cholera in Russia.

The Russian Government has officially stated that on May 29th (June 11th) a labourer, a native of Astrakhan, fell ill there with symptoms of cholera and was removed to the municipal hospital, where he died the next day. The diagnosis of cholera was confirmed bacteriologically. A telegram from Vitebsk, dated July 29th, states that eight cases of cholera had been seen there up to that date, and that the Vitebsk government (one of the north-central governments) has been declared "threatened" with cholera.

The Plague Epidemic at Bushire.

Since the date of my last letter this epidemic has declined and ultimately died out. The following figures are in continuation of those published in that letter:—

Week ending May 25th	18	cases,	22 deaths.
,, ,, June 1st	25	,,	17 ,,
,, ,, ,, 8th	18	,,	14 ,,
,, ,, ,, 15th	5	,,	2 ,,
,, ,, ,, 22nd	0	,,	0 ,,

Finally, Bushire was declared free of plague on June 27th. Fortunately there has this year been no spread of the infection to the Bahrein Islands or other places on the Persian Gulf, as in some other recent epidemics. It may be of interest in this connexion to give the following brief summary of plague outbreaks in the Gulf since 1905. In that year there was a small epidemic of the disease in Bahrein Islands between May and July and a few imported cases at Bushire. In 1906 plague seems to have been absent from the Gulf. In 1907 the disease reappeared in the Bahrein Islands in April and prevailed there until July; at one time as many as 500 deaths per week were being reported; some imported cases were also seen at Lingah, Bushire, and Basra. In 1908 the Gulf was again apparently free from plague, though the disease was epidemic that year in Bagdad. In 1909 the Bahrein Islands were again the scene of a small outbreak in the month of May, and few cases were imported to Muscat and Bushire. In 1910 there was a rather severe outbreak of the disease at Bushire, lasting from March to June; the infection was said to have been imported from Bahrein, but there was no evidence that plague was present there. A few imported cases were again seen at Basra. Finally, in 1911 there was a renewed outbreak in Bushire, lasting from April to July; a less severe epidemic was also seen at Muscat; a few imported cases occurred at Basra; and a very severe epidemic in the Bahrein Islands. This latter epidemic began at the end of April and lasted until July 16th; in May and June several hundred deaths were being reported weekly from the islands and the total mortality must have been very great. It is, therefore, all the more gratifying that so far these islands have escaped this year.

Plague at Adalia.

As in so many recent summers, isolated cases of plague are again being reported from Adalia, on the southern shores of Asia Minor. On June 16th a native of the town, working at a flour store, fell ill with the disease; and on July 6th a second suspected (and fatal) case was seen.

Plague in the Kirghiz Steppes.

On June 8th (21st) the Russian Government declared the Uralsk territory "threatened" and Kirghiz regions of the Lbitchensk districts, beyond the Ural mountains, "infected" with plague. Next day it was announced that 5 fatal cases of the disease had occurred between June 4th and 7th (17th and 24th) in the Tchatyrtinsk settlement in the Uralsk district; and that 14 cases with 9 deaths had occurred in the "10th *aoul*" of the Kourailsk settlement and at Balantoubek and Karakoul, in the Lbitchensk district, in the first five days of June (Old Style). Five other fatal cases had also been reported from the Matesh settlement.

On June 25th (July 8th) the Russian Government announced that between May 15th (28th) and June 15th (28th) 33 cases of plague and 30 deaths had been registered in the Uralsk territory; that all had occurred among the Kirghiz inhabitants; and all had been confined to three settlements or communities—those of Matesh (5 cases and 5 deaths), Kourailsk (15 cases and 14 deaths), and Tchatyrtinsk (13 cases and 11 deaths).

Pneumonic Plague in Algeria.

A sharp little outbreak of pneumonic plague has just been reported from "une petite agglomération dite 'le Ruisseau,'" situated at 7 kilometres distance from the port of Algiers. The first announcement of this outbreak was made on July 24th, when it was stated that 6 cases, with 5 deaths, had occurred, all in one family, and all between July 6th and 11th. No plague-infected rat, it was added, had been seen. A later telegram states that the sixth case died in hospital on July 17th; that no further cases had developed; that the destruction of rats was being continued, but that bacteriological examination of these animals had hitherto given negative results.

[1] See THE LANCET, June 22nd, p. 1720.

Plague at Trieste.

On July 26th it was reported from Trieste that two cases of plague, "bacteriologically confirmed," had occurred on the Austrian Lloyd steamer *Amphitrite*, which had arrived at Trieste the day before from the Syrian coast. A second telegram, dated the 29th, states that "one of the quartermasters of the s.s. *Amphitrite*, which arrived at Trieste 20 days before from Mersina, fell ill on July 18th with symptoms of plague," and that the diagnosis had been confirmed bacteriologically. It may be hoped that later news will reconcile these two contradictory telegrams.

Cholera in Hungary.

At the moment of writing a telegram from Budapest appears in the local papers stating that one certain case of cholera (confirmed bacteriologically) and one suspected case have occurred at Mindszent in Hungary.

Constantinople, July 30th.

THE THIRD INTERNATIONAL MEDICAL CONGRESS ON INDUSTRIAL ACCIDENTS.

(FROM OUR SPECIAL CORRESPONDENT.)

THE Third International Medical Congress on Industrial Accidents was held at Düsseldorf from August 6th to 10th, and was largely attended by medical men interested in this subject from all parts of Europe. This Congress, as regards the number of members and the scope of the discussions, was a greater success than the previous congresses at Liège and Rome, and representatives were present from France, Belgium, Holland, Russia, Austria, Hungary, Italy, England, the United States, and Switzerland, as well as from Germany. The growing importance of industrial accidents and their relations to compensation has attracted the attention of many of the leading medical men in all countries where there is a system of Workmen's Compensation and National Insurance, and among those who took an active part in this Congress were Professor Lucas-Championnière, of Paris; Professor Thiem, of Cottbus; Professor Bernacchi, of Milan; Dr. de Marbaix, of Antwerp; Dr. Kaufmann, of Zürich; and Professor Lubarsch, of Düsseldorf.

The subjects which were chosen for discussion and upon which addresses were given and papers read were: (1) The Importance of Early Functional Treatment in Cases of Injuries; (2) The Effect of Trauma on Arterio-sclerosis; (3) The Connexion between Arthritis Deformans and Accidents; and (4) The Influence of Accidents upon the Causation or Aggravation of Cancer. The programme of the Congress also included summary reports on the results of investigation decided upon at the second Congress, which was held at Rome three years ago, and reports were submitted upon the comparative state of the Workmen's Compensation Act in force in different countries, and also upon the question of insurance against occupational diseases.

The Congress opened on August 6th with a reception given at the Royal Government Palace by Dr. Kruse, the Governor of the Düsseldorf district, who gave an address of welcome and afterwards entertained the members to tea, and on the following four days the mornings and afternoons were devoted to the discussions and papers, while entertainments of various kinds were arranged by the reception committee for the evenings.

The Importance of Early Functional Treatment.

Professor LUCAS-CHAMPIONNIÈRE (Paris), in giving an address upon this subject, said that in cases of injuries to bones and joints for more than 30 years he had demonstrated the importance of early movements in order to restore the functions of the injured part as rapidly as possible, so as to enable the injured workmen to return to work without undue delay. There were two obstacles, however, to this treatment being universally carried out: first, the routine practice of many medical men who wrongly regarded immobilisation as the most favourable condition for repair; and secondly, the law on workmen's compensation obtaining in all countries where it has been established, which provides for abstention from work until the injured workmen has *completely* recovered, and as a result not only are the functions of the injured part seriously interfered with, but every active function of the whole body, thus acting detrimentally to the general nutrition and as a consequence delaying recovery of the region which has been injured. As the law stood at present the workman had a decided advantage, for as long as he was unable to work he was paid compensation, and he compared his injuries with those of his fellow workmen who had experienced similar accidents, and did not see the necessity of returning to work before they did, even on the advice of his doctor who realised that work might be of advantage to him. The speaker went on to say that although the advantages of early functional movements were overwhelmingly evident, when he proposed to move injured parts immediately after an accident a number of surgeons expressed themselves in favour of active, rather than passive, movements, basing their opinion upon favourable results which they had obtained in certain cases. He said that, speaking generally, injured workmen resumed their work after too long a period of time, and it would be not only for their own benefit, but also for the benefit of their employers, if they returned much sooner than they did at present. He realised that each accident had to be considered on its merits, and that it would be unwise for injured workmen to return to work too soon, but he related cases of jockeys who were able to remount their horses in spite of a broken clavicle, and said he had seen workmen with a fracture of the radius commence work immediately after the accident without any bad results. Early functional movements must, however, be prescribed along definite scientific lines or there might be serious results in some cases. He said it was necessary to determine carefully the conditions under which these movements should be carried out so as to restore early the functions of the part, and he emphasised the importance of this treatment in injuries in the region of joints, in accidents to the hands and feet, as well as to other parts of the body, and laid down several rules which would ensure the best results as regards the restoration of functional activity of the injured part in the earliest possible time with the minimum risk. In the first place, it was essential to begin early functional movements immediately after the accident, but it was important that there should be *no pain* while the movements were being carried out; further, the movements should be progressive and there should be no feeling of exhaustion or fatigue in the injured region as a result of these movements, and lastly, the movements should not be so violent as to retard the healing of any wound or to produce any difficulty or complication which would defeat the very object for which the treatment was prescribed. He pointed out that the age of the patient was of the greatest importance, and that old people who have met with accidents should receive the treatment under the direct observation of their medical advisers, and even then with all possible care, for if the movements were excessive, painful complications might ensue and persist for a long time.

Dr. DE MARBAIX (Antwerp) spoke of the advantages of early functional treatment in cases of fractures of the wrist and femur and dislocations of the shoulder-joint, and said that the treatment by fixation caused prolonged and disastrous results. In dislocation of the shoulder early movements prevented complications and never caused recurrence of this condition.

Dr. JAMES R. KERR (St. Helens), speaking from an experience of 400 cases of injuries to tendons of the hands in glass workers, said that the functions of the injured hand should be considered from the very moment the accident occurred, and urged that skilled first-aid methods should be available at all factories so as to prevent sepsis. Unless the tendons were treated under the most favourable conditions that modern surgery could secure, the term "functional treatment" was a misnomer. No treatment could take the place of tendon-suture, although active movements were the most important factors in the after-treatment.

Dr. A. R. MOODY (Stoke-on-Trent) communicated a paper on Ionic Medication in cases of Traumatic Neuritis, and emphasised the utility of this means of treatment in cases where ordinary treatment had failed. He instanced the case of a maternity nurse who suffered from this disease as a complication of blood-poisoning in the right hand, and as a result there was complete disablement, but after 24 applications of ionic medication there was complete restoration of the functions of the hand.

Professor HACKENBUSCH (Wiesbaden) gave a demonstration of a method for carrying out early passive movements in cases of fractures by means of a new splint, the object of which was first to get the fractured ends into good position, and afterwards to allow of movements taking place without any displacement of the fractured parts being possible.

Dr. F. SHUFFLEBOTHAM (Newcastle-under-Lyme) introduced the subject of the importance of early functional treatment in cases of contusions and sprains of the back, and regretted that this class of accident had been neglected by medical men. In all injuries to this region it was essential to eliminate fractures of the spine, which in some instances could only be diagnosed by means of Roentgen rays. He said that a sprain of the back was, as a rule, a complicated injury which might involve muscles, nerves, as well as the joints of the vertebral column, and a knowledge of the anatomy of the lumbar region was essential before the nature of the sprain could be properly understood. These cases were thought lightly of at the time of the accident because, in the majority of cases, the only symptom was localised pain; but they should receive the same attention as fractures and dislocations because of the long-continued disability from work, to say nothing of pain and suffering, which ensued when the treatment was neglected. He spoke of the urgency of massage and systematic exercises being prescribed early in these cases so as avoid the formation of adhesions and the atrophy of muscles, and said the subject was of the utmost importance in industrial districts because of the great frequency of these injuries.[1]

Arterio-sclerosis and Accidents.

Dr. REMY (Paris) read a paper in which he said that it was a common occurrence for him to find pronounced arterio-sclerosis in workmen at the age of 35, especially if they were addicted to alcohol. He attributed the condition to continued hard work, aggravated by excess, and said that syphilis was an important factor in many cases. He believed that in such cases trauma would aggravate the condition of arterio-sclerosis and cause incapacity for work, even after the workman had recovered from the immediate effects of the original injury.

Dr. L. FEILCHENFELD (Berlin) said that he had studied the question of the effect of trauma upon cases of cerebral hæmorrhage, ruptured aneurysm, and cardiac failure, and he came to the conclusion that only skilled pathologists should make autopsies on such cases, as great experience was necessary in order to give a reliable opinion.

Arthritis Deformans and Injury.

Professor GRÄSSNER (Cologne) read a paper on this subject in which he said that many cases which were diagnosed as arthritis deformans of the vertebral column were fractures of this region, and he pointed out the desirability of a radiographical examination in each case. He showed a series of radiographs in which the diagnosis of arthritis deformans was proved to be incorrect, and he reported one case which he regarded as arthritis deformans of traumatic origin.

Dr. REMY did not believe there was any relation between an injury and this disease. He said that hereditary syphilis was often found in these cases, and in women the symptoms of arthritis deformans were often first manifested at the menopause.

Cancer and Accidents.

Professor LUBARSCH (Düsseldorf) gave an address upon the effect of accidents on cancer, and after a brief description of the various theories of the causation of cancer of Virchow, Cohnheim, and Fibbert, went on to speak of his own experiments with a view of determining if he could trace any connexion between an injury and the formation of a cancer, or if he could prove that cancerous conditions could be aggravated by trauma. He said that he had made hundreds of experiments on mice and subjected them not only to one injury but to repeated injuries, but he had failed to find in a single case any evidence of cancerous growth. He pointed out that no one knew anything about the determining factors of the *latent* period of cancer. Sometimes a cancer would remain quiescent for many years, and sometimes the symptoms would suddenly become acute and death would rapidly ensue. It signified nothing for a man suffering from a cancer in the stomach to complain of pain in the stomach after an accident, and to attribute the cancer to the accident, because so many cases were known of cancers of a large size in a latent state producing no symptoms, and many necropsies showed cancer to be present when no symptoms had been observed during life. Recently he had performed a post-mortem examination on a sailor whose death was caused by a fall from the top of the mast of a ship. In this case a very large cancer was found in the stomach, although the man had never complained of any trouble, and apparently he had been a healthy man all his life. He then discussed the question as to whether cancer could be aggravated by trauma and said that the method of growth of cancer was unknown. Cancers grew very queerly. Sometimes they increased in size rapidly, in some cases very slowly, and in others not at all. He had made a large number of experiments on mice in which he had implanted cancerous deposits, and afterwards he had injured them, not only at the seat of the cancer, but in other places, but could draw no definite conclusions, as many of the growths remained the same, some becoming worse while others actually disappeared. Unless he found actual increased cell activity in the cancer he would not be satisfied that trauma could aggravate a cancer. In conclusion, he said that in the light of modern knowledge there was no proof that any relation existed between trauma and the formation or aggravation of cancerous growths.

Professor THIEM (Cottbus), who followed, said that he agreed with Professor Lubarsch's conclusions, and in his large experience had never found any evidence to make him believe that an injury could either cause or aggravate a cancer.

Dr. SHUFFLEBOTHAM said that if cancer were caused or aggravated by trauma, then one would expect to find this disease more prevalent in those industries in which accidents were most frequently found. In the United Kingdom there were one million coal-miners, and each year about 16 per cent. of them met with accidents of such a serious nature that they were incapacitated for work for more than seven days, and yet the mortality tables of the reports of the Registrar-General had consistently shown that cancer as a cause of death was comparatively rare among the mining community, from which he inferred that trauma had no effect on the causation of cancer.

General.

Great interest was taken in all the discussions, which were largely attended throughout the week, and the arrangements were admirably carried out under the superintendence of Professor Liniger, whose powers of organisation and whose geniality were the admiration of the members of the Congress.

There was an exhibition mainly dealing with town-planning arranged to coincide with the Congress, and there was a section devoted to social medicine, and one found everything in connexion with the organisation of modern hospitals, sanatoriums, and the special services necessary for the treatment of victims of industrial accidents.

The city of Düsseldorf was lavish in its hospitality. A trip was arranged on the Rhine, and the members of the Congress were taken to Benrath and Zous and entertained to dinner on board on their return. Concerts were arranged at the Tonhalle and Zoological Gardens, and free passes were given to museums, galleries, exhibition, and over the whole tramway system. Nothing was omitted to make the Congress a success, and every delegate will remember with pleasure his visit to this beautiful city.

The next Congress will be held in Paris in 1914, under the presidency of Professor Lucas-Championnière.

[1] This address is published in the present issue of THE LANCET.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Health of the City.

IN the medical officer of health's report for the second quarter of this year the population of the city is estimated at 850,947. The births during the quarter numbered 5538, equal to a rate of 26·1 per 1000, against an average of 29·5 in the second quarters of the preceding ten years. Deaths numbered 2643, giving a rate of 12·5 per 1000, against an average of 14·5 in the preceding ten years. With the

exception of 1910, when the rate was 11·7, this year's record is the lowest in the series. The quarter was favourable as regards infant mortality. The deaths of infants under one year of age numbered 512, equal to a rate of 93 per 1000 births. In the ten previous years the average for this quarter was 115. In 1910 it reached its lowest figure of 91, but last year rose to 105. Of 16 great towns ten had a higher infant mortality than Birmingham. Among infectious diseases the principal cause of death was whooping-cough, which claimed 107 victims, compared with an average of 102 in the past ten years. Measles accounted for 28, diphtheria for 11, scarlet fever for 24, and enteric fever for 8—all considerably below the average. The cases notified included scarlet fever 963, compared with 860 in the previous ten years; diphtheria 169, against 251; enteric fever 15, against 67; erysipelas 183, against 184; ophthalmia, 58; poliomyelitis, 6; and tuberculosis, 1091. The deaths from tuberculosis numbered 270. Head teachers of the elementary schools reported the following cases: measles, 1471; German measles, 602; whooping-cough, 722; chicken pox, 780; and mumps, 286. In reference to sanitary administration 15,034 insanitary conditions were discovered by the inspectors and notices served to abate them. Samples purchased by inspectors led to 22 prosecutions under the Food and Drugs Act. 18 prosecutions were instituted for emitting dense black smoke. Meat inspectors paid 3118 visits to slaughter houses, and nearly 74 tons of bad meat, about 19 tons of bad fish, and 3 tons of bad fruit were taken to be destroyed.

Tuberculosis Scheme.

About 5000 cases of consumption are notified yearly, and there are 1200 on the waiting list for admission into the sanatoriums. With the present accommodation it would take two years to get the patients through the sanatoriums. The council, after much discussion, has passed the health committee's scheme to enlarge the sanatorium accommodation to 283 beds—215 at Yardley-road and 68 at Salterley Grange. There will also be hospital accommodation for 112 patients. At the tuberculosis dispensary about 500 patients attend per week. The accommodation, which consists at present of two small rooms, is quite inadequate, and it is proposed to remove the dispensary to the old water department in Broad-street, where the accommodation will consist of departments for men, women, and children, four examination rooms, a room for pathological investigations, and a dispensary. The cost of the Yardley-road extension will be approximately £30,000 and of the dispensary £3000. The Local Insurance Committee has agreed to pay 25*s.* per week for the maintenance of each insured person receiving sanatorium treatment; for the preliminary examination and report thereon a fee of 5*s.* will be paid, and it has also been agreed that in respect of insured persons receiving tuberculin a fee of 1*s.* 6*d.* should be paid for each injection. When the Act once comes into full operation it is estimated that at least £13,000 will be available from the insurance funds, and for the first six months £4000 will be available.

Acute Poliomyelitis.

About 150 cases of acute poliomyelitis are known to have occurred in Birmingham during 1911, but many cases undoubtedly passed unrecorded, as compulsory notification did not commence until Jan. 1st, 1912. Most of the cases occurred during August and September. The medical officer of health has issued a letter indicating the measures which may prevent the spread of the disease. A minimum period of quarantine of two weeks is fixed for children who have been in contact, provided the patient is effectively isolated. The children affected should be isolated for six weeks. Disinfection of the house and sick-room will be done free of charge. A good deal of evidence has been brought forward that carriers may play an important part in the spread of the disease.

Treatment of Puerperal Fever.

The Birmingham and Midland Women's Hospital have decided to make suitable provision for puerperal fever. A ward will be erected and additions made to the nurses' home. There will be 25 more beds, and 14 of these will be appropriated for Birmingham cases. In return for this the city council will pay £72 a bed per annum, a total of £1008. This amount is equal to three-fifths of the total cost of the scheme. The other 11 beds will be for general septic cases.

August 13th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

University of Edinburgh: Retirement of Professor Greenfield.

As already stated in THE LANCET, Dr. W. S. Greenfield, professor of pathology in the University of Edinburgh, has sent in his resignation of the chair to the University Court, to take effect from the end of September. As August and September are holiday months in Scotland, and men are scattered far and wide in search of change and recreation during these months, considerable inconvenience is being experienced by those who officially or otherwise will be affected by the resignation. The winter session begins in the first few days of October, and the new professor ought to be ready to begin his duties then. Professor Greenfield has also sent in his resignation as a physician to the Royal Infirmary. This was received at the last meeting of the board of managers, and Sir James O. Affleck was requested to draft a minute in connexion with the retirement. At the same meeting of the infirmary managers at which Professor Greenfield's retirement was announced a letter was received from the University Court asking the managers to appoint a member of the staff to temporary charge, and to act as a lecturer on clinical medicine, as the University Court has under consideration the institution of a special professorship in clinical medicine. The matter was remitted to the medical managers. It was also intimated that Mr. J. M. Cotterill's term of office as a surgeon to the infirmary had expired, and a minute was approved recording the sense of obligation of the managers to him for giving so freely and so willingly of his time and thought to the service of the institution. The board appointed him a consulting surgeon to the institution.

Edinburgh Royal Infirmary and the National Insurance Act.

Some discussion arose at the last meeting of the board of managers of the Edinburgh Royal Infirmary with regard to a motion, submitted by one of the managers, to rescind the resolutions passed on July 15th regarding patients who came under the provisions of the National Insurance Act. The mover of the resolution claimed that it was public business and wanted it discussed at the next public meeting of the board. This was held to be out of order as the matter belonged to the private business. At the subsequent private business meeting it is understood the managers approved the resolutions previously passed. The resolutions passed on July 15th have already appeared in THE LANCET of July 20th, p. 191, and need not be repeated. They were the outcome of representations made to the managers by the honorary staff, and they have aroused very hearty approbation from medical men all over Scotland.

British Dental Association.

The thirty-second annual general meeting of the British Dental Association was held in Glasgow last week. Twenty-five years have elapsed since the association held its conference in the city, and a cordial welcome was extended to the representatives numbering fully 350 who took part in the proceedings. The meetings were held in the University, where the members were received by Professor T. H. Bryce, Regius professor of anatomy, in the absence of Principal Sir Donald MacAlister. Mr. Rees Price, president for the year, delivered his inaugural address, dealing principally with dental work under the school boards. At the business meeting Mr. W. A. Rhodes, of Cambridge, was unanimously elected president-elect of the association. The membership of the association now stands at 2100 as compared with 2000 last year. The executive committee submitted a memorandum on the importance of dental treatment of tuberculous patients and the conditions of appointment of dental surgeons to institutions. Reference was made to legislation relating to dental practice and to the bearing of the Insurance Act on the work of the dental profession. The report concluded with a reference to the inspection and treatment of school children, stating that while it was pleased with the sympathetic attitude of Sir George Newman, chief medical officer of the Board of Education, it was, nevertheless, unhappily true that the needs of the great majority of the 6,000,000 school children of the United Kingdom were still unprovided for. During the course of the conference a number of papers dealing with technical

subjects were submitted. On the first evening of the conference the members attended a reception in the City Chambers given by the Lord Provost and Corporation. The guests, who numbered about 800, were received by Lord Provost Stevenson and the magistrates, and during the evening dancing took place in the banqueting hall. On the next evening the annual dinner of the association was held in the Grosvenor Restaurant, and this was attended by about 200 gentlemen.

A New Hospital for Glasgow.

At a meeting of the Glasgow town council's health committee last week plans were approved of for the construction of a hospital at Robrogaton for the treatment of consumption and small-pox patients. Alternative offers are to be taken for the erection of a building of ordinary construction estimated to cost £57,299, or of composite construction, at an estimated outlay of £61,531. In the meantime the structures are to accommodate 210 patients, but they are to be so laid out and planned as to admit of an extension to house 600 patients.

Aberdeen University: Chair of Medicine.

Mr. Ashley W. Mackintosh, M.A., M.D., has been appointed to be Regius professor of medicine in the University of Aberdeen in the place of Professor David Whyte Finlay, resigned. Dr. Mackintosh was born at Deskford, Banffshire, where his father was parish minister. Coming to Aberdeen he entered college as first bursar, graduating as M.A. four years later with double first-class honours—classics and mathematics—and gained at the same time the town council gold medal, as well as being bracketed equal for the Simpson mathematical prize. In 1888 he obtained the Fullerton mathematical scholarship during a term's study at King's College, Cambridge. From 1889 to 1893 Dr. Mackintosh studied medicine at Aberdeen University, when he took the Fife Jamieson gold medal in anatomy, the Matthews Duncan gold medal in obstetrics, the medal and prize for clinical medicine, and first-class prizes in chemistry and physiology. He graduated as M.B. and C.M. in 1893 with highest honours, and in addition carried off the John Murray gold medal and scholarship. During the same year Dr. Mackintosh was appointed to the George Thomson travelling fellowship. He studied in Leipsic, Vienna, and London, and in 1896 took the degree of M.D. at Aberdeen, with highest honours. Since then Dr. Mackintosh has been in practice in Aberdeen, of late as a consulting physician only. For 12 years an assistant physician to the Aberdeen Royal Infirmary, he was in 1909, upon the resignation of the late Dr. Angus Fraser, appointed full physician. Dr. Mackintosh has all along taken a keen interest in the affairs of the University. For 12 years an officer in the Territorial Forces, and holding the command of the Aberdeen companies, Royal Army Medical Corps (T.F.), he is at present a lieutenant-colonel *à la suite*, First Scottish General Hospital.

August 13th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The National Insurance Act: The Conjoint Committee.

THIS committee met in the Royal College of Surgeons on August 6th and framed the following resolutions, amongst others:—

1. That in consonance with the action taken by the British Medical Association, the medical members of the Irish Advisory Committee be called upon to resign.
2. That all practitioners be called upon to refrain from accepting any post or office in connexion with the administration of sanatorium benefit, unless and until the lines on which such benefit is administered be such as are approved by the committee.
3. That an appeal be made to the Local Government Board not to sanction the appointment of any chief tuberculosis officer who has not had such experience and is not of such standing as to command the confidence and enlist the coöperation of the practitioners with whom he will have to work.
4. That, while fully appreciating the great work already accomplished by the Women's National Health Association, the committee expresses its strong disapproval of the action of that body in attempting to usurp the functions and powers of the statutory local authorities in regard to the establishment of sanatoria and tuberculosis dispensaries under the National Health Insurance Act and the Tuberculosis Prevention Act (Ireland); and that they consider such action calculated to divert the sympathy and coöperation of the profession in Ireland in working sanatorium benefit.

It was also unanimously decided that all those members of the profession who had been appointed by the Insurance Commissioners to act on Local Insurance Committees without having been nominated by the County Medical Committees who had been invited to submit four names each, out of whom the Commissioners were to select two, should be appealed to to resign, this being the natural sequel to the situation alluded to in these columns last week. The committee adopted certain principles as essential to the working of tuberculosis dispensaries, deciding that the chief tuberculosis officer should be a whole-time officer, at a salary of not less than £400 per annum, exclusive of travelling expenses; and that his duties should be confined to organisation and to consultation, the treatment of the patients being carried out by their usual medical attendant, at a scale of fees per visit to be arranged locally with the administration authority by the Local Medical Committee.

The Women's National Health Association and the Conjoint Committee.

The organising secretary of the Women's National Health Association forwarded a reply, under date of August 12th, 1912, to resolution No. 4 printed above, in which it is pointed out that the scheme now being carried out by the Women's National Health Association, after being adopted by the executive committee, was submitted to a special health conference of representatives of county councils and other local health authorities in Ireland, convened under the authority of the Local Government Board, and attended by many members of the medical profession. At that conference, says the organising secretary, a resolution was unanimously passed recommending the county councils to accept the offer of the Women's National Health Association to give provisional assistance in the care of tuberculous patients coming under the Insurance Act. The Women's National Health Association's scheme was then submitted to each county council, with the result that 133 permanent beds have been contracted for by a number of county councils, who will, of course, be represented on the committee of management. In addition to these permanent beds, 78 beds have been ordered for provisional use by other county councils, and ten beds have been taken for six months by the Dublin County Council Insurance Committee. The letter went on to state that all the proceedings of the Women's National Health Association in connexion with the provisions for sanatorium benefit under the National Insurance Act and the Tuberculosis Prevention (Ireland) Act have been taken with the full knowledge and approval of the medical members of their committee of supervision.

Domiciliary Treatment of Tuberculous Patients.

At the last meeting of the Limerick County Borough Insurance Committee a provisional scheme for the administration of sanatorium benefit under the Insurance Act was agreed to. Dr. W. A. Fogarty mentioned that the Limerick Doctors' Committee held a meeting the previous night and agreed that they would be willing to give their services in attending tuberculous patients for a capitation fee of 5*s*. per week, or £1 per month, the visits to be one or two each week, as found necessary. The fee would be for attendance at their homes, and would also include medical certificates to the committee of the progress of tuberculous patients under the charge of the medical attendants. The committee unanimously accepted the proposal, which was considered very reasonable in the circumstances. In Dublin the Local Medical Committee has suggested that a fee of 5*s*. per visit should be charged.

Death of Dr. John James Charles.

The death occurred in his sixty-seventh year, after a lingering illness from heart disease, at Portrush, co. Antrim, on August 10th, of a distinguished member of the medical profession, Dr. J. J. Charles. Dr. Charles was for 30 years professor of anatomy and physiology in Queen's College, Cork.

Down County Council.

At a meeting of the county council of Down held on August 9th Dr. John R. Gillespie, of Southampton, a North of Ireland man by birth, was appointed medical superintendent of the new tuberculosis dispensary to be established.

August 13th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Prophylaxis of Paludism.

AT a recent meeting of the Société de Médecine Militaire Française M. Romary spoke highly of the value of arrhenal as a preventive of malaria. He had seen only advantageous results follow the association of arrhenal in moderate doses with quinine and cinchona, especially in markedly malarial countries and in cases following on extreme fatigue. He advised the administration on five consecutive days out of each ten of 40 grammes of a wine of cinchona containing 1·25 grammes of arrhenal, a fifth part being taken daily after one of the meals. If acute attacks occurred a return to quinine alone should be made, which would be all the more efficacious in that the organism would not have become habituated to it.

The Fire at the Faculty of Medicine at Toulouse.

When this fire occurred, in October, 1911, I mentioned it in my letter to your columns. The Civil Tribunal of Toulouse has now given judgment in the action brought by several insurance companies against the Société Toulousaine d'Electricité, with regard to the fire, which destroyed the Faculty of Medicine and the University Library. The judgment accepts the report of the experts as to the causes of the disaster, which seems to have been occasioned by a defective connexion. The Tribunal consequently holds the company responsible to the plaintiff companies and orders it to reimburse them for the policies paid to the insured. The sum involved may amount to 800,000 francs. The society intends to appeal against the judgment.

Pituitrine in Accouchements.

M. Siguret has reported to the Société d'Obstétrique et de Gynécologie his results with the use of pituitrine in 27 cases at the Clinique Tarnier. No injurious effect has been noted on either mother or child. In two cases in which the woman was suffering from vomiting the administration of pituitrine was followed by marked uterine contractions, which appeared stronger as complete dilatation was approached. The amount of blood lost during delivery was in many cases great. M. Bar and M. Pelissier showed, in support of the author's views, a chart of the uterine contractions taken from a woman in a case of miscarriage, in whom when the contractions ceased pituitrine was administered to arouse them. According to this chart the uterine contractions supervened immediately on the administration of the pituitrine and augmented in intensity.

The Notification of Tuberculosis in France.

For many years the question of the notification of tuberculosis has occupied the attention of medical men, and has frequently given rise at the Academy of Medicine to warm discussion. Excellent arguments have been produced both by the partisans and the opponents of the measure. The discussion has recently been continued in the parliamentary committee on tuberculosis. The syndicate of medical men of the Seine has now passed the following resolution: Considering that the propagation of this disease is especially dependent on the unhealthiness of workmen's dwelling-places, on the bad hygienic conditions of the population, and on alcoholism, which aggravates considerably the action of a germ which is universally present, and which it is impossible completely to suppress, the imperious duty before all incumbent on the public authorities is to check the spread of tuberculosis by effective measures, especially by a strict surveillance over lodgings and suppression of the letting of lodgings insufficiently ventilated and lighted, by the improvement of the hygiene and nourishment of work people, and by assisting the struggle against alcoholism. The syndicate of medical men of the Seine considers that the notification of tuberculosis, through the fear that it would engender in patients which would prevent them from having recourse to a medical man, who alone could ensure the necessary early prophylactic measures, would only augment the diffusion of tuberculosis. The syndicate also considers that the compulsory disinfection of lodgings on the departure of the lodgers, which could easily be carried out without any betrayal of professional secrecy, would avoid all the inconveniences of notification and would afford guarantees against propagation. It protests against the adoption of a measure which it considers almost useless and vexatious to the public. It also protests against the rôle of policeman that such a measure would impose on the medical man, in contravention of the canon of professional secrecy, by compelling him to abuse the confidence imposed in him by his patients in notifying the cases of tuberculosis disclosed to him in his professional work. The syndicate has therefore decided to transmit the above resolution to the Academy of Medicine and to Parliament.

The Action of the Bile in Vitro on the Development of Intestinal Microbes.

At the Société de Biologie on July 27th M. Lagasse said that the addition of bile to the bouillon of the cultures of intestinal microbes exercised no antiseptic power, but seemed to favour the development of certain microbes at the expense of others. Whilst the development of the colon bacillus was not prevented, the number of the colonies of the different anaerobic micro-organisms of the intestine was considerably diminished. This same action was exercised when colon bacilli and perfringens were planted at the same time on a bile medium; the development of the last named was inhibited, to the advantage of the colon bacillus.

August 13th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Hospital Ships of the Royal Italian Navy.

THE accounts which have appeared in the English and American press of the hospital ships of the Royal Navy have been misleading, in that they have been described as mere ambulance ships instead of hospital ships in every sense of the word. On the outbreak of the war two ships of a little more than 6000 tons apiece were bought from the Lloyd Sabando Co., the *Re d'Italia* and the *Regina d'Italia*. They are ships of modern construction, 134·30 metres long by 16·05 metres wide, with a speed of 14 miles an hour, and capable of carrying about 1800 tons of coal. They have been fitted up to take some 800 patients each; the space is ample for this number, as they were built to accommodate 2000 emigrants. The sick bays are large with plenty of air and ventilation. There are operating-rooms, dressing-rooms for septic and aseptic cases, isolation rooms for infectious cases, chemical, bacteriological, radioscopic, and other rooms, all furnished with every care for detail, comfortable, airy, and light. Important operations are performed on board, such as resections, amputations, craniotomies, ligature of important vessels, and removal of bullets, of splinters, and other foreign bodies. The medical staff is composed of experienced officers who have paid special attention to surgery, of a bacteriologist, and one or two younger medical officers. The two ships have had under care and brought back to Italy 8000 sick and wounded. In addition, they have acted, one might almost say, as field hospitals of the first line. On the night of the action for the capture of Bengasi the *Re d'Italia* received 132 severely wounded, who remained on board for 10 days, and similarly she received the wounded after the battle of Derna in March and after the battle of Due Palme. The *Regina d'Italia* acted in the same way at the taking of Bu Chamez and at Rhodes at the battle of Psitos. The system adopted for the embarkation and disembarkation of the wounded is simple and so rapid that not more than a minute is occupied over each case. There can be no doubt that both in equipment and in performance these two ships have amply justified their claim to be really hospital ships, and one can understand the irritation felt in naval medical circles at their description as merely ambulance ships in the Anglo-American press.

The Therapeutic Effects of Intravenous Injection of Strophanthin.

In the *Policlinico*, Fasc. 25 of the Sezione Pratica, 1912, two cases are recorded in which the intravenous injection of strophanthin produced most satisfactory and remarkable effects. The first case was that of a young woman suffering from typhoid fever. On the twenty-second day of the disease the temperature reached normal, the pulse was 95–100 per minute, the respirations 20–24. On the following morning she suddenly fainted; the pulse became rapid, 160 beats per minute, irregular, and very small. The temperature rose rapidly and the general condition became very alarming. An intravenous injection of one milligramme of strophanthin was given, and in a short time so completely changed the clinical picture that the

medical man in immediate charge of the case wrote in the notes, "the patient, who seemed to have finished with life, after the injection has risen from the dead!" The pulse at once fell to 130–112 beats per minute, and although for some days it remained between 100–110 its strength returned at once. In the same way the general condition improved immediately and the temperature returned to normal. The second case was that of a man, aged 42, with aortic and mitral insufficiency, intensely cyanotic, dyspnœic on the least movement, with small and very rapid pulse, venous pulsation in the neck, pulsating large and tender liver, and œdema of legs. He was treated for four days with digitalis, strychnine, and sparteine with no improvement. The pulse was 180–200, the urine varied from 400–700 c.c. a day with ½ per cent. of albumin, and the patient continued to suffer from dyspnœa, restlessness, insomnia, and palpitation of the heart. One milligramme of strophanthin was injected with marvellous results. The pulsations from 200 fell immediately after the injection to 168, and after three hours to 98. The pulse became stronger and the arterial pressure notably augmented. The patient had a sense of well-being such as he had not enjoyed for a long time. During the following days the pulse remained good and urine was passed in large quantities, six litres on the first day after the injection, seven litres on the second, and so on, until in a few days the œdema had quite disappeared. Twelve days after the first injection the patient had another attack of tachycardia, following a slight upset of the stomach. A second intravenous injection of strophanthin was given with the same happy results as before. The editor of the *Policlinico* adds to his contributor's paper a short abstract of a paper by Professor Fraenkel in the *Münchener Medicinische Wochenschrift* (Nos. 6–7, 1912), in which he recommends the use of strophanthin by hypodermic and intravenous injection.

Serious Accident to Professor Burci.

Professor Burci, head of the Clinica Chirurgica of Florence, on July 28th met with a severe accident, which at first seemed likely to prove fatal. He had bought a new car at Bologna and had gone there to bring it back to Florence. On the way over the Apennines, as they were coming down a steep descent near Bagni di Porretta, the chauffeur applied the brakes too sharply, lost control of the steering, and ran the car over the side of the road. Professor Burci was thrown some yards out of the car and was picked up unconscious and taken by a passing car to the hospital at Porretta, where he lay for 24 hours unconscious. Lumbar puncture withdrew blood-stained fluid, and there was bleeding from the ears. His surgical colleagues from Florence, Bologna, Pisa, and Turin hastened to his assistance, with Professor Grocco from the baths of Montecatini and Professor Lustig from Monsumano. The news of the accident created the profoundest impression throughout Tuscany and especially in Florence, where both as surgeon and fellow-citizen Professor Burci enjoys the esteem and affection of all classes. Happily the worst fears have proved unfounded, consciousness is now completely regained, and all seems going securely towards complete recovery. This serious accident recalled to mind the fate of Professor Burci's immediate predecessor in the chair of surgery in Florence, Professor Colzi; while pigeon-shooting one day in the Cascine his gun burst in his hands, injuring the left arm terribly. His colleagues were loth to amputate the surgeon's arm, gangrene set in, and death ensued. Florence still talks of his funeral, the most impressive within recollection, for his skill and his kindness had won him a place rarely attained in the heart of the people.

August 12th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Proposed Limitation of the Number of Students of Anatomy.

THE increasing numbers of students applying for permission to study anatomy at the University of Vienna have placed the teaching staff of the medical faculty in a somewhat difficult position. The anatomical department has for many years been suffering from the inadequacy of the accommodation available for both teachers and students, and repeated applications which have been made to the Government by both professors and students to grant the necessary sums for providing additional chairs, tables, washing utensils, instruments, and other requisites have hitherto been unsuccessful. Last year over 1500 students were working in the four dissecting-rooms, both beginners and those preparing for an examination. Finally, in the hope of forcing the responsible authorities to turn their attention to the unsatisfactory state of affairs, the professors took the bold step of announcing that in the next autumn term the number of students admitted to the institute will be restricted to 1000, and that preference will be given in the first place to those who were working there in the previous term; after them new students from within the Austrian dominions will have opportunities; whilst students from abroad will find admission only in the unlikely event of less than 1000 Austrian students applying for permission to study anatomy. This proposed limitation is a departure from the traditions of our educational policy, which has not hitherto placed any restrictions on the liberty of studying. It may even give rise to some questions of international politics, for the University of Vienna, situated as it is between the medical schools of Germany and Switzerland on the one hand, and that of Constantinople on the other, is a favourite resort of medical students from the Balkan States.

Public Health in Vienna during June.

Last June was characterised by an unusually low incidence of disease and mortality. Dr. Foredl, in his report to the Board of Health of Vienna, states that both as regards new cases of disease as well as the percentage of recoveries the official records have never yet shown the public health to be so good during the month of June as in the present year. There were reported, amongst the Poor-law service, 1867 cases of diseases of the respiratory organs, 1771 cases of inflammatory gastro-intestinal diseases, and 671 cases of tuberculosis of the lungs and bones. At the public hospitals there were in this month 17,475 attendances of new patients. The number of reported new cases of infectious diseases was less by 30 per cent. than in the previous month, owing chiefly to the decline in measles, chicken-pox, and rubeola; the full number of cases of the various infectious diseases that came under observation was as follows: 431 of scarlet fever, 1018 of measles, 95 of rubeola, 218 of chicken-pox, 181 of diphtheria, 142 of whooping-cough, 149 of infective parotitis, 12 of typhoid fever, and 121 of erysipelas. During this month 2642 persons died, 52·42 per cent. being males and 47·58 per cent. being females; this is the lowest number of deaths ever recorded for the month of June, averaging 81 per day, the lowest previous average for this month having been 83 per day, although the population has been increasing steadily at the rate of about 2 per cent. per annum for about the last 18 years. As regards the weather, there were 212 hours of sunshine; the rainfall was a little above the June average computed for 135 consecutive years, and the chief explanation of the very favourable state of the public health is to be found in the absence of gastro-intestinal disorders among infants, this in its turn being due to the comparatively cool weather which prevailed during the month.

August 5th.

NOTES FROM SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

A "Black Peril" Commission.

A COMMISSION has been appointed by the Government to consider what is known as the "black peril." The terms of reference are as follows:—

1. To inquire into and report upon the prevalence of sexual assaults which are committed on women (*a*) by men of the same race and colour as the women; and (*b*) by men of a different race and colour to the women.
2. The extent to which such assaults occur in the different parts of the Union and in different localities therein.
3. The causes of these crimes, and especially with reference to (*a*) the congregation of large numbers of natives in mining areas living for long periods in separation from their women folk, (*b*) the excessive use of liquor, (*c*) the contact of the natives in certain localities with undesirable Europeans, (*d*) the divorce of the native from his ordinary mode of life, and (*e*) the employment of male natives as domestic servants and as nurse boys for girl children.
4. In how far the committing of these assaults may be prevented, suppressed, or discouraged by (*a*) greater precautions on the part of the European women, (*b*) increased police control, (*c*) improved

municipal control, (*d*) the compounding of natives in mining areas and the establishing of locations in urban areas, and allowing the natives to bring their wives with them to mining and urban areas, (*e*) the introducing of new forms of punishment, and (*f*) amendments in the native pass laws and their administration.

5. Generally the influence or bearing of any other social and economic factors in respect of such assaults.

6. Whether there are any other remedies which in the opinion of the Commission should be adopted to deal with the evil.

The Commission is a strong one under the chairmanship of the late Chief Justice of the Orange Free State, and includes such well-known names as Sir John Graham and General de Wet. Three of the Commissioners are ladies interested in social work. The most striking omission is that there is no medical man on the Commission, and it is not unlikely that this omission may severely handicap the inquiry, which must necessarily embrace a considerable number of medical or quasi-medical questions.

King Edward VII. Nurses.

A detailed memorandum has been published by the committee of the King Edward VII. Memorial scheme showing what it has been doing. It has advanced so far that there is every prospect of a centre being established in each of the four provinces by the end of the present year. At each centre there will probably be, to begin with, three nurses, so that the South African Order will lead off with 12 nurses, which is somewhat better than the beginning of the Indian Nursing Association, which began with only three, and Canada, which had about the same number. There is a probability of district nurses being appointed in those centres that show that they want them by offering a guarantee, which should not be a very heavy responsibility, since it could never be called upon, except to the extent of making up the difference between the fees and the maintenance of the nurse and her salary. The memorandum disposes of some of the criticisms concerning the scheme. For instance, it is laid down that the nurse, and especially in the one nurse centre, will be under the control of some specially delegated local authority in order to decide on the conflicting claims on her services. The greatest need is to constitute the greatest claim, and not any consideration of subscriptions paid into the fund by any individual. Generally the proposals now laid down are sound and deserve every support.

Medical Men on Licensing Boards.

In the debate on the estimates of the Department of Justice on June 7th the question was raised as to the action of the Minister in continually setting aside the recommendations of the magistrates with reference to appointments to licensing boards, and it was stated that in one case the magistrate had been informed that General Hertzog was opposed to the appointment of medical men on these boards. In reply, the Minister made a scathing attack upon the honour and integrity of the medical profession. He enumerated other callings the members of which he stated he was determined to exclude from these bodies, but he picked out the medical profession in particular, and in a few remarks, offensive alike in tone and manner of delivery, he stated that doctors would look after their own interests, and would not do anything that might hurt a client or potential client.

Public Health.

In committee on the estimates of the Department of the Interior, Dr. J. Hewat moved a reduction of £5 on the salary of the Minister of the Interior in order to elicit a statement from the Minister on the policy of the Government in regard to public health. In a very able speech he showed that it was a matter of the very greatest importance that a public health measure should pass the House, and he pointed out that the Minister of the Interior himself earlier in the session had, in introducing the Public Health Acts Amendment Act which was unacceptable to the country, stated that there was urgent need for a consolidated Public Health Act for the Union, not only to provide a proper organisation to deal with infectious diseases throughout the Union, but to give legal powers to deal with the outbreak of plague in Natal. He drew attention to action after action by his department which he stated was not in the interests of the health of the community, and categorically asked the Minister whether he had framed any public health policy at all and if so what exactly it was. Dr. Macaulay associated himself with Dr. Hewat's questions. He pointed out that the Minister had failed during two sessions of Parliament to get the Public Health Bill through, and failed because he had not troubled to consult those people who were able to give him proper advice. He remarked that he had been requested to bring before the House a document from the South African Committee of the British Medical Association, in which the Government was urged to appoint a Commission to inquire into and report upon the necessity or otherwise of a Department of Public Health, a Portfolio of Public Health, the relations between the Union and the Provinces in public health matters, and other important points. He appealed to the Minister, as he had failed to give satisfaction in the matter, to appoint a commission. The Minister of the Interior, in reply, stated that the practical cessation of plague in Durban was one of the reasons why the Government had not proceeded with the Bill, but he had been very disappointed at finding that his proposals in that measure had been so strongly opposed. He believed that as the House was at present constituted it was next to impossible to carry through any comprehensive measure dealing with public health. He feared also that any future Minister of the Interior would fight shy of the issue owing to the difficulties with which it was surrounded. In the House itself expert and lay opinion clashed, and the division of authority between the Union and the Provinces increased the difficulty tenfold. He was not prepared to pledge the Government to introduce another Bill of the kind in the near future. It is evidently the intention of the Government, therefore, to adopt a policy of drift in regard to public health.

Union Medical Bill.

Dr. Hewat then brought up the question of a Union Medical Bill, and pointed out that this was an urgently needed measure, but the Government had done nothing at all to bring about uniformity. The Minister of the Interior said that he quite recognised the pressing need for the introduction of a Union Medical Bill, and stated that he sympathised with the desire of the profession to have the matter settled on a satisfactory basis. A commission appointed by him had made suggestions for a comprehensive Bill, but some of the recommendations he felt were impracticable, whilst others raised issues which he feared would be very troublesome and difficult to deal with in the House, and the result was that he felt much embarrassed. During the recess he had also met another small body who had objected to some points in the suggested Bill. He had undertaken to draft a Bill on lines upon which he thought there was some agreement. When the redrafting was completed the Bill would be circulated amongst the medical councils, and next session he hoped, if there was not too great pressure of business, to introduce it.

Mine Mortality.

In committee on the estimates, the Right Hon. Mr. Merriman, who was a member of the Select Committee on the Miners' Phthisis Bill, made one of the most eloquent speeches of the session on the awful mortality in the Rand mines, both from accidents and disease. He urged strongly the need for better supervision by the Government over the health of mine workers. He threw out the suggestion that this was a matter which could perhaps be best dealt with by an independent medical commission or committee to advise the Mines Department on the matter, but he expressed the view that such a body should be a permanent one and quite independent of the control of the department. He urged strongly that a system of holding inquests should be instituted, and stated that at present the only inquiry made was as a rule a perfunctory one by an inspector of mines, who was not qualified to sift evidence or to come to a proper conclusion on such a matter. Dr. Macaulay said that Mr. Merriman had exaggerated, but that the conditions were far from being all that could be desired, and were being improved as far as practicable. He entirely agreed with Mr. Merriman in his protest regarding inquests. The Minister of Mines stated that the abolition of inquests was dictated by a desire to avoid delay in the inquiries, but he promised to look into the matter during the recess and to consider the advisability of restoring the system.

School of Anatomy: South African College.

The opening of the new anatomical and physiological laboratories at the South African College took place on June 6th in the presence of H.E. the Governor-General, the formal opening ceremony being performed by the Hon. F. S. Malan, Minister of Education. The school has already made

a most satisfactory start and has attracted some 50 students to it. The aim of the college council, as expressed by Dr. E. B. Fuller in delivering the opening address, is to consolidate the two first years of study, to secure recognition of the courses in the schools of Great Britain, and then to push slowly and surely forward until a complete medical school for South Africa has been established. The new buildings have been very well designed and are eminently suitable as up-to-date laboratories.

Cape Municipal Ordinance.

A Bill has been gazetted to provide for the consolidation and amendment of the law relating to municipalities in the Cape Province. This is an important measure, conferring, *inter alia*, extensive public health powers on local authorities and on the Administrator effective powers of control. It is likely, however, to complicate the question as to how far the provincial administrations should be responsible for the public health of the country. Judging by this Ordinance, it would seem as if the dealing with infectious diseases only is to remain a Union matter, whilst the dealing with sanitary matters had been transferred to the provinces. Municipal councils may, and if required so to do by the Administrator must, appoint health officers who shall be registered medical practitioners, and shall not be removed from office or have their salaries reduced except with the consent of the Administrator. These provisions are sound and the latter are very necessary, as it is a common occurrence in some parts of South Africa for a health officer to be compelled to resign for dealing with insanitary properties owned by councillors. At the same time, it would have been preferable had additional power been conferred upon the Administrator to require, should he deem it necessary so to do, the health officer to be a whole-time official, and for such an officer to hold a recognised diploma in public health.

July 4th.

Obituary.

ARTHUR TREHERN NORTON, C.B., F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. MARY'S HOSPITAL, LONDON.

Mr. Arthur Trehern Norton, of Leyfields Wood, Ashampstead, Berks, died in a nursing home at Reading on August 4th, in his 72nd year.

Mr. Norton, who was the second son of the late Dr. Robert Norton, of Bayswater, was born on August 17th, 1841. He received his early education at Totteridge Park, and his professional education at St. Mary's Hospital, London, where he became an assistant demonstrator of anatomy before the end of his student career. In 1862 he qualified as M.R.C.S. and L.S.A. He also studied at Paris and Berlin. In 1867 he took the Fellowship of the Royal College of Surgeons of England, and in the same year he became assistant surgeon to St. Mary's Hospital. In 1868 he became lecturer on anatomy at St. Mary's, and in 1870 was appointed to the charge of its newly established department for diseases of the throat.

In the same year he served in the Franco-Prussian war and received the French gold medal in recognition of his organising work in relation to the ambulance department. In 1876 he became full surgeon to St. Mary's and lecturer on surgery. He was an examiner for the University of Durham and the Apothecaries' Society. His active connexion with St. Mary's ceased in 1897, when he went on the consulting staff, after 20 years' hard and successful work in charge of beds and as clinical teacher. In the same year he was made a Companion of the Bath in recognition of the part taken by him in the organisation of the Volunteer Medical Staff Corps, and of his many years' service in it as Surgeon-Lieutenant-Colonel commanding. He also received the Jubilee medal and the Volunteer Officers' decoration, and was an honorary Associate of the Order of St. John of Jerusalem. His military experiences led to his appointment as a member of the War Office Committee for the development of the Volunteer Medical Service. He was an ardent supporter of the movement for admitting women to medical degrees, and took an active part in founding the London School of Medicine for Women.

Mr. Norton's published works were not numerous: "Osteology for Students," the "Examiner in Anatomy," and "Affections of the Throat and Larynx," the first two the fruit of his long service in the teaching of anatomy, the last of his many years of service in the throat department at St. Mary's, in the early stage of the development of the specialism of laryngology. A paper from him on Accommodation of Vision, and Anatomy of the Ciliary Body, was published in the Proceedings of the Royal Society, and he contributed the article on the Anatomy of the Eye to Haynes Walton's "Diseases of the Eye." He also translated and edited Bernard and Huette's "Operative Surgery and Surgical Anatomy," which attained to a second edition. He was not an extensive contributor to the medical journals, but was one of the proprietors of the *Medical Press and Circular*, with which he was at one time editorially connected.

We have received from Mr. A. J. Pepper an interesting appreciation of his late colleague, Mr. Norton, which is, however, probably of too personal a nature on the whole to be reproduced. Mr. Pepper testifies most warmly to Mr. Norton's capacity and geniality. "He was," says Mr. Pepper, "courtesy itself and a man of kindly disposition." Indeed, he refers to his own personal indebtedness to Mr. Norton and to the ungrudging personal help freely afforded to his colleagues and students by Mr. Norton, whose services to St. Mary's and to innumerable St. Mary's men will ever be held in grateful remembrance.

In 1898 Mr. Norton married Lucy Maude, eldest daughter of Mr. E. Meredith Chase, of Newhouse Park, Herts.

THOMAS LAWES ROGERS, M.D. ST. AND., M.R.C.P. LOND., M.R.C.S. ENG.

Dr. Thomas Lawes Rogers, who died at Eltham, Kent, on August 7th, aged 83 years, was the third son of the late Mr. Joseph W. G. Rogers, of Alvediston, Wilts. He received his medical education at St. Bartholomew's Hospital, qualifying as Member and Licentiate in Midwifery of the Royal College of Surgeons of England in 1853. In 1854 he joined the 1st Coldstreams and served with them through the Crimean war. In 1857 he took the M.D. of St. Andrews, and in 1860 became a Member of the Royal College of Physicians of London. He left the army in 1858 to become medical superintendent of the Rainhill County Lunatic Asylum, Lancashire. He was president of the Psychological Section of the British Medical Association in 1883. He retired from practice in 1888. Dr. Rogers was much interested in various forms of social work, and served on many committees, notably on the managing committee of the Dreadnought Seamen's Hospital. He took an active part in the establishment of the new School of Tropical Medicine at London Docks.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Edmund von Neusser, professor of medicine and director of the Second Medical Clinic in Vienna, from renal cancer, aged 60. His first appointment was that of assistant to Professor Bamberger, who was then director of the Second Medical Clinic. On his death Dr. von Neusser was placed in charge until the vacancy was filled up by the appointment of Professor Kahler. He then went to Sofia as physician to Prince Ferdinand and clinical professor in the Bulgarian Medical School. He subsequently returned to Vienna, and in 1893 was appointed to succeed Professor Kahler as professor of medicine with charge of his own old clinic. He was a voluminous writter on medical matters, his first important publication being a report on pellagra in Friant and Roumania which he was commissioned to prepare by the Austrian Government. He also made various researches on the pathology of the blood and on diseases of the adrenals. More recently he published lectures or papers on angina pectoris, dyspnœa and cyanosis, brachycardia and tachycardia, with special reference to their clinical symptomatology and diagnosis.—Professor Albert Rosenberg, a well-known Berlin laryngologist. He introduced menthol applications to the notice of the profession as a method of treating tuberculous affections of the larynx, and published various works on mouth and throat diseases; also, in association with Dr. Onodi, a large manual of treatment of nasal and post-nasal affections. He

was 55 years of age, and his death occurred suddenly at Flims from cardiac failure.—Dr. William Hailes, formerly professor of pathological anatomy and histology in Albany Medical College.—Dr. H. Zuppinger, lecturer on radiology and mechanical therapeutics in the University of Zürich.—Dr. Attimont, formerly physician to the Nantes hospitals.—Dr. Carret, formerly deputy in the French Parliament.

Medical News.

A NEW TUBERCULOSIS EXHIBITION.—An exhibition of all kinds of appliances useful in fitting up tuberculosis dispensaries and sanatoria, and of materials of all kinds used in the treatment of tuberculosis, will be held for 12 months, beginning August 26th, at the offices of the Society of Medical Officers of Health, 1, Upper Montague-street, London, W.C. Especial attention will be paid to the heating, lighting, and ventilation of tuberculosis institutions.

MEAT POISONING IN CORNWALL.—After a school tea at Treviscoe, Cornwall, which was attended by 160 people, 57 were attacked with symptoms of severe gastric derangement, lasting from a few hours to several days. It was at first suspected that the tea had been poisoned, but no trace of any toxic substance was found on examination of either the tea or the boiler in which it was made. The medical officer of the St. Austell rural district, after careful examination of all the facts, came to the conclusion that the meat used was the source of the trouble, and that it had been infected by flies.

BANQUET AT AIX-LES-BAINS TO THE LORD MAYOR OF LONDON.—Sir Thomas Boor Crosby, Lord Mayor of London, was entertained on August 13th at a banquet given in his honour at the Grand Cercle, Aix-les-Bains. Dr. Goddard presided, and, with M. Blanc, the Mayor, welcomed the guest of honour. Among those present were Professor Chauffard and Professor Faure, of Paris; Professor Ralph Stockman, of Glasgow; Professor Jonnesco, of Budapest; Professor Suarez de Mendoza, of Madrid; Mr. Hunter F. Tod and Dr. F. J. McCann, of London; Dr. Alfred S. Gubb, of Aix-les-Bains, with many other French and foreign celebrities.

PROFESSOR DESGREZ INJURED BY A BULL.—We regret to hear that a somewhat singular accident has occurred to M. Desgrez, the eminent professor of chemistry to the Paris Medical Faculty. He was attending a Congress of the French Association for the Advancement of Science at Nimes, and while crossing the St. Louis Square there with other members of the Congress, a Spanish bull, which had escaped from the local bull ring, suddenly rushed into their midst, scattering the gathering in all directions, and striking M. Desgrez in the back with its horns. Fortunately the attack was not repeated, and the professor was able to take refuge in a neighbouring house. The injury does not appear to have been of a dangerous character.

DONATIONS AND BEQUESTS.—The University of Manchester has just received notice that there is a reversion of over £40,000 for University purposes under the will of Mr. John Hall, of St. Leonards, brother of the late Sir Samuel Hall, K.C., formerly Vice-Chancellor of the County Palatine of Lancaster. He left estate of the gross value of £44,978. After making bequests to his nieces he directed that during the life of these nieces, or the survivors of them, his residuary estate is to be accumulated at compound interest, and on the decease of the survivor he left £40,000 to Victoria University, Manchester, in memory of his late brother, Sir Samuel Hall, K.C. £20,000 are allocated for a chair of Chemistry and £15,000 for a chair of Philosophy. The ultimate residue of his property he left to the Victoria University, Manchester, for "John Hall" scholarships. Should either of the testator's nieces enjoy a long life the £40,000 bequest would be increased. It would appear that the amount available for the "John Hall" scholarships depends entirely upon the length of life enjoyed by the said nieces.—An anonymous donation of £3000 has been received by the officials of the West London Hospital, Hammersmith.

HONOUR FOR A HUNGARIAN SURGEON.—The Austrian Kaiser has, as King of Hungary, raised the well-known surgeon of Budapest, Professor Emanuel von Herczel, to the dignity of Baron.

HOSPITAL ROBBERIES.—For some time past robberies of valuables from surgeons operating at various London hospitals have caused great disquietude. They were traced to a *soi-disant* German medical student, who has been sentenced to nine months' imprisonment with hard labour, to be followed by deportation.

BOOKS, ETC., RECEIVED.

APPLETON AND COMPANY, D., New York and London.

Psychotherapy, including the History of the Use of Mental Influence, Directly and Indirectly, in Healing and the Principles for the Application of Energies Derived from the Mind to the Treatment of Disease. By James J. Walsh, M.D., Ph.D., Dean and Professor of Functional Nervous Diseases and of the History of Medicine at Fordham University School of Medicine, and of Physiological Psychology at the Cathedral College, New York. Price 25s. net.

Food Values. Practical Tables for Use in Private Practice and Public Institutions. By Edwin A. Locke, A.M., M.D., Instructor in Medicine, Harvard Medical School. Price 5s. net.

Oral Surgery. A Text-book on General Surgery and Medicine as Applied to Dentistry. By Stewart Leroy McCurdy, Professor of Anatomy and Oral Surgery, School of Dentistry, University of Pittsburgh. Price 12s. 6d. net.

A Text-book of Gynecology. By William Sisson Gardner, M.D., Professor of Gynecology, College of Physicians and Surgeons, Baltimore, Md. Price 12s. 6d. net.

ASH, CLAUDIUS, SONS, AND CO., LIMITED, 5 to 12, Broad-street, Golden-square, London, W.

School Dental Clinics, Their Foundation and Management. By C. Edward Wallis, M.R.C.S., L.R.C.P., L.D.S., Dental Surgeon and Lecturer on Dental Surgery, King's College Hospital. Price 3s. 6d. net.

BAILLIÈRE, J. B., ET FILS, Paris.

Nouveau Traité de Chirurgie Clinique et Opératoire. Publié en Fascicules sous la Direction de A. Le Dentu et Pierre Delbet. XXVI.: Maladies du Pancréas, de la Rate et du Mésentère. Par G. Chavannaz, Professeur à la Faculté, Chirurgien des Hôpitaux de Bordeaux; et J. Guyot, Professeur Agrégé à la Faculté, Chirurgien des Hôpitaux de Bordeaux. Price, paper, Fr.10; boards, Fr.11.50.

BAILLIÈRE, TINDALL, AND COX, London.

Surgery of Deformities of the Face, including Cleft Palate. By John B. Roberts, A.M., M.D., Professor of Surgery in the Philadelphia Polyclinic, Surgeon to the Methodist Hospital. Price 12s. 6d. net.

The Treatment of Infantile Paralysis. By Oskar Vulpius, M.D., Professor-Extraordinary at the University of Heidelberg. Translated by Alan H. Todd, M.B., B.S., B.Sc. Lond., House Surgeon, Guy's Hospital, late Resident Surgical Officer, Royal National Orthopædic Hospital. With Introduction by J. Jackson Clarke, M.B. Lond., F.R.C.S. Price 10s. 6d. net.

Medico-legal Examinations and the Workmen's Compensation Act, 1906. By Sir John Collie, M.D., J.P., Medical Examiner for the London County Council, Chief Medical Officer to the Metropolitan Water Board. Price 5s. net.

CONSTABLE AND COMPANY, LIMITED, 10, Orange-street, Leicester-square, London, W.C.

La Maladie du Sommeil au Katanga. By F. O. Stohr, M.B., B.Ch. Oxon. Price 4s. net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. Pathology of the Eye. By P. H. Adams, M.A., M.B., D.O. Oxon., F.R.C.S., Surgeon to Oxford Eye Hospital; Consulting Ophthalmic Surgeon to the Radcliffe Infirmary. Price 5s. net.

Oxford Medical Publications. Salvarsan in Syphilis and Allied Diseases. By J. E. R. McDonagh, F.R.C.S., Surgeon to Out-patients, London Lock Hospitals. Price not stated.

Oxford Medical Publications. X-Ray Diagnosis and Treatment. A Text-book for General Practitioners and Students. By W. J. S. Bythell, B.A. Cantab., M.D. Vict., Hon. Physician to the Ancoats Hospital, Manchester (Electro-therapeutic Department); and A. E. Barclay, M.D. Cantab., M.R.C.S., L.R.C.P., Medical Officer to the Electrical and X Ray Departments, Manchester Royal Infirmary. Price 15s. net.

Oxford Medical Publications. Consumption in General Practice. By H. Hyslop Thomson, M.D., D.P.H., Medical Superintendent, Liverpool Sanatorium. Price 12s. 6d. net.

LEWIS, H. K., London.

The Extra Pharmacopœia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B. Lond., D.P.H., H.M.'s Coroner for North-East London. Fifteenth Edition. In Two Volumes. Vol. I., price 14s. net; Vol. II., price 7s. net.

Elements of Practical Medicine. By Alfred H. Carter, M.D., M.Sc., F.R.C.P. Lond., Professor of Medicine, University of Birmingham. Tenth Edition. Price 9s. net.

Three Lectures on Unicellula Cancri, the Parasite of Cancer. By the late Sir Henry Butlin, Bart., D.C.L., F.R.C.S. Eng. Edited by R. H. Paramore, M.D. Lond., F.R.C.S. Eng., Hunterian Professor of the Royal College of Surgeons. Price not stated.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

A Collection of Papers Published Previous to 1909. By William J. Mayo and Charles H. Mayo. Two volumes. Price per set 42s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BURGESS, J. G., L.S.A., has been reappointed Medical Officer for No. 6 District of the Downham Board of Guardians.

DUFF, DONALD, F.R.C.S. Edin., F.R.F.P.S. Glasg., has been appointed Assistant Surgeon to the Glasgow Royal Infirmary.

HUGHES, F. M., M.R.C.S., L.R.C.P., has been appointed Assistant House Surgeon at the Poplar Hospital for Accidents.

JOHNSON, H. E., M.B., Ch.B. Edin., has been appointed Medical Officer for the Callington District of the Liskeard Board of Guardians.

JOLLY, R. W., M.R.C.S. Eng., has been reappointed School Medical Officer of Peterborough.

MESSITER, CYRIL C., L.M.S.S.A. Lond., has been appointed Junior House Surgeon and Anæsthetist at the Croydon General Hospital.

MACKINTOSH, A. W., M.D. Aberd., has been appointed Regius Professor of Medicine in the University of Aberdeen.

SAVILL, AGNES, M.D. Glasg., has been appointed Honorary Physician to the London Skin Hospital, Fitzroy-square, W.

VINING, C. WILFRED, M.D., B.S. Lond., M.R.C.P., D.P.H., has been appointed Assistant Physician to the Leeds General Infirmary.

YULE, GEORGE PRATT, M.D. Edin., has been appointed Medical Officer of Health of the County of Fife.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BARNSTAPLE, NORTH DEVON INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

BEDFORD COUNTY HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Senior House Surgeon. Salary £90 per annum, with board, rooms, and laundry.

BIRMINGHAM UNION, DUDLEY-ROAD INFIRMARY.—Two Assistant Medical Officers. Salaries £104 to £120 per annum, with apartments, rations, laundry, and attendance.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRECONSHIRE, BRECON AND RADNOR ASYLUM, Talgarth.—Assistant Medical Officer. Salary £170 per annum, with board, apartments, washing, and attendance.

BROMLEY (KENT) EDUCATION COMMITTEE.—Part-time Medical Officers for Children's Ear, Nose, Throat, and Eye Defects.

BURNLEY, VICTORIA HOSPITAL.—Second House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and washing.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Physician. Salary £100 per annum, with apartments, board, and laundry.

CARDIFF, KING EDWARD VII. HOSPITAL.—House Surgeon for six months. Salary £30, with board, residence, and laundry.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CHINGFORD, HOSPITAL FOR INFECTIOUS DISEASE.—Resident Medical Officer. Salary £120 per annum, with rooms and board.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £90 per annum, with rooms, board, washing, and attendance.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

GOVAN DISTRICT ASYLUM, Crookston, near Paisley.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with rooms, board, attendance, and laundry.

HASTINGS, EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary at rate of £70 per annum, with residence, board, and washing.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Earl's Court, London, S.W.—Resident Medical Officer. Salary at rate of £75 per annum, with board and laundry.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons for six months. Salary at rate of £60 per annum, with board and residence, in each case. Also Surgical Registrar and Tutor. Salary £20 per annum.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board and residence.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £175 per annum, with quarters, attendance, &c.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried. Salary £100 per annum.

NEWCASTLE-UPON-TYNE HOSPITAL FOR SICK CHILDREN.—Senior Medical Officer. Salary £100 per annum, with board and £30 for lodging. Also Junior Medical Officer. Salary £80 per annum, with board, lodging, and laundry.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Resident Medical Officer. Salary £200 per annum, with board and residence.

NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum and travelling expenses.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, residence, and washing.

PORTSMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

QUEEN MARY'S HOSPITAL FOR CHILDREN, Carshalton, Surrey, and PARK HOSPITAL FOR CHILDREN, Hither Green, London, S.E.—Three Assistant Medical Officers. Salaries £150 per annum, with board, lodging, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Medical Officer in Charge of Electrical Department. Salary £100 per annum.

ROCHESTER, ST. BARTHOLOMEW'S HOSPITAL.—Resident House Physician. Salary £110 per annum, with board, residence, and laundry.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen appointments.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £100 per annum.

ST. ALBANS, HERTS COUNTY ASYLUM, Hill End.—Junior Assistant Medical Officer. Salary £160 per annum, rising to £180, with board, lodging, and washing.

ST. MARY'S HOSPITAL FOR WOMEN AND [CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

ST. THOMAS'S HOSPITAL.—Chemical Pathologist.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with residence, board, and allowance for laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £65 and £60 per annum respectively, with board, lodging, and washing. Also Two Honorary Assistant Surgeons.

SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £70 per annum.

SHEFFIELD UNIVERSITY.—Professor of Pathology.

SHREWSBURY, SALOP INFIRMARY (THE COUNTY HOSPITAL).—House Surgeon. Salary £150 per annum, with board, washing, and residence.

SMETHWICK, COUNTY BOROUGH OF, EDUCATION COMMITTEE.—School Medical Officer. Salary £250 per annum.

SOMERSET COUNTY COUNCIL.—Tuberculosis Medical Officer. Salary £500 per annum.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £60 per annum, with rooms, board, and washing.

STOCKPORT INFIRMARY.—Two Junior House Surgeons. Salary £30 per annum, with board, washing, and residence.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry.

TIVERTON HOSPITAL, Devonshire.—House Surgeon and Dispenser. Salary £80 per annum and all found.

WALSALL AND DISTRICT HOSPITAL.—House Physician and Casualty Officer. Salary £90 per annum, with board, residence, and laundry.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon for six months. Salary at rate of £100 per annum, with board, lodging, and laundry.

WEST BERKS UNITED DISTRICTS.—Medical Officer of Health. Salary £530 per annum, with an allowance of £330 per annum for travelling, office, and other expenses.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry allowance provided.

WILTS COUNTY COUNCIL.—Tuberculosis Officer. Salary £500 per annum and travelling expenses.

WINDSOR, KING EDWARD VII. HOSPITAL.—Second House Surgeon. Salary £75 per annum, with residence, board, laundry, and attendance.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, washing, and attendance.

YORK COUNTY HOSPITAL.—House Physician for six months. Salary at rate of £100 per annum, with board, residence, &c.

YORKSHIRE, WEST RIDING.—Tuberculosis Officer. Salary £500 per annum.

Births, Marriages, and Deaths.

BIRTHS.

KAYE.—On August 11th, at Eaglestone, Strathpeffer, the wife of Henry Wynyard Kaye, M.D. Oxon., of a son.

TA'BOIS.—On August 9th, at Clare Hall, South Mimms, Barnet, the wife of A. C. Ta'Bois, M.D., of a daughter.

MARRIAGES.

CANE—ENGLISH.—On August 8th, at Holy Trinity Church, Orton Longueville, Leonard Buckell Cane, M.D., to Margaret, eldest daughter of Marcus V. English, of Orton Longueville, Peterborough.

HUNTER—BEALE.—On July 9th, at the Parish Church, Stone, Kent, Percy Douglas Hunter, M.R.C.S., L.R.C.P., to Kate Bell, daughter of Mr. Charles Beale.

DEATHS.

ARMBRECHT.—On August 7th, at Duke-street, Grosvenor-square, Ernst Louis Armbrecht, aged 77 years.

MEREDITH.—On August 11th, at St. Leonards, John Edward Meredith, M.D., of Maidstone, after a long illness.

SEQUEIRA.—On August 9th, James Scott Sequeira, M.R.C.S., of South Hackney, aged 84 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A DIRTY CITY.

Mr. C. L. M. Pearson, British Consul for the district of Pernambuco, Brazil, in his annual report to the Foreign Office, states that the health of the city of Pernambuco, or Recife, during the year 1911 was bad. Deaths from small-pox reached the alarming figure of 2438 and from tuberculosis of 1441. Yellow fever showed an increase. Vaccination stations are established in various parts of the city, but no real effort is made to deal with small-pox, nor is there any attempt to exterminate the mosquito or to deal with yellow fever. At the time of writing there were a large number of cases of yellow fever even amongst the Brazilians, who are usually considered immune. The city is extremely dirty, and no organised effort is made to put it into a clean and sanitary condition. A considerable increase in the mortality of the city is apparent each year which cannot be accounted for by increase of population. The present population of Recife is put at 200,000. Deaths during the year 1911 numbered 10,264, the death-rate being 51·17 per 1000. The Governor realises these serious conditions, and proposes to take immediate steps towards putting the city into a sanitary state, but a large and well-organised sanitary staff will be required and the expense will be considerable. With a deficit last year, it is to be feared that sufficient money may not be forthcoming to carry the necessary work through. An elaborate system of drainage-pipes is being laid through the town, but so far no attempt has been made to connect the houses with the system; the present water-supply is quite insufficient for flushing purposes, and further supplies will have to be brought from some outlying district. Owing to the extremely high duties prevailing the cost of living is very high. Houses are hard to find and the rents exorbitant. The native labourer is, as a rule, poorly paid, and his life rather a struggle for existence. He generally lives in an insanitary straw-roofed mud hut with several other members of his family and relations crowded together, his principal food being jerked beef, beans, native flour, and codfish. The low living conditions of the labouring native population are to a great extent responsible for the high mortality from small-pox and tuberculosis.

TO THOSE SEEKING A LOCUM-TENENT.

To the Editor of THE LANCET.

SIR,—May I ask your readers—especially those in the Eastern Counties—who may receive an application from either "Dr." George Covey or "Dr." Richard Nunn for appointment of locum-tenent to communicate with me before entering into any contract?

I am, Sir, yours faithfully,

A. G. BATEMAN, General Secretary.

Medical Defence Union, 4, Trafalgar-square, W.C.,
August 6th, 1912.

THE TREATMENT OF MORPHINISM.

To the Editor of THE LANCET.

SIR,—Here is a question upon which I should like the advice of your readers. Recently there has come under my care a lady 85 years of age. Some 25 or 30 years ago she was seen by a well-known London physician, who prescribed for her to relieve severe sciatica a hypodermic injection of a quarter of a grain of morphia. Those injections have been continued daily ever since, sometimes as many as four injections daily of more than a grain at each injection. She has been under my care four weeks. I have reduced the dose to one-fourth of that formerly administered. Would it be safe and prudent to withhold the morphia altogether? I am, Sir, yours faithfully,

August 12th, 1912. M.R.C.S.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for August, September, and October:—

May to October (London, Earl's Court).—Shakespeare's England.
Aug. 6th–27th (Balkans, Turkey, Greece).—Ninth Annual Congress of the Association Internationale de Perfectionnement Scientifique (A.P.M.).
,, 8th–30th (Central Europe).—Medical Study Tour ("A.P.M."), starting at Besançon.
,, 11th–18th (Cracow).—Eighth Esperanto Congress.
,, 12th–17th (Harvard University, Cambridge, Mass.).—Ninth International Otological Congress.
Aug. 24th–Sept. 9th (Toronto).—Canadian National Exhibition.
Sept. 1st–14th (France).—Voyage d'Etudes Médicales.
,, 2nd–7th (Wrexham).—Welsh National Eisteddfod.
,, 3rd–6th (Breslau).—Thirty-seventh Meeting of the German Association for Care of Public Health.
,, 4th (Washington, D.C.) and Sept. 6th–13th (New York). Eighth International Congress of Applied Chemistry.
,, 4th–11th (Dundee).—British Association.
,, 7th (Departure from Hamburg).—German Medical Study Trip to North America.
,, 8th and 9th (Zürich).—Congress of Psychiatry and Psychotherapy.
,, 8th–11th (London, Royal Agricultural Hall).—Dairy Show.
,, 9th (probable opening date) (Geneva).—International Congress of Anthropology and Prehistoric Archeology.
,, 9th–10th (San Sebastian).—Third Spanish Congress of Tuberculosis.
,, 10th–12th (Berlin).—Sixth International Congress of Obstetrics and Gynæcology.
,, 15th–21st (Münster).—Eighty-fourth Meeting of the German Association of Scientists and Medical Practitioners.
,, 23rd–25th (Toulouse).—"Cold" Congress. (Cold Storage and Cryologic Methods.)
,, 23rd–28th (Washington, D.C.).—Fifteenth International Congress on Hygiene and Demography.
,, 24th–27th (Detroit).—Fourteenth Annual Meeting of the American Hospital Association.
,, 27th–29th (Hamburg).—Sixth Annual Meeting of the German Society of Specialists in Nerve Diseases.
,, (Toronto).—Second Annual Meeting, Canadian Public Health Association.
September or October (Perth, Western Australia).—(Three days.) Health Congress.
Oct. 3rd and 4th (Columbia, South Carolina).—National Conference on Pellagra.
,, 3rd–8th (Prague).—Sixth International Congress of Radiology and Medical Electrology.
,, 9th–12th (New York).—Electrical Exposition and Automobile Show.
,, 10th–12th (Paris).—Sixteenth Session of the French Association of Urology.
,, 10th–13th (Meran).—Seventh Austrian Congress of Balneologists
,, 13th–16th (Paris).—Thirteenth French Congress of Medicine.
,, 16th–21st (Rome).—International Congress on the History of Art.
,, 17th–23rd (Paris).—First International Congress of Comparative Pathology.
,, 29th–Nov. 2nd (London, Royal Horticultural Hall).—Twenty-third Universal Cookery and Food Exhibition.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Mr. Addison: Demonstration of Minor Operations. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 10.30 A.M., Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Armour: Abdominal Drainage.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations on the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Bernstein: The Relation of the Laboratory to Medicine.

THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr Wall: Diseases of the Pleura.

TUESDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr Grünbaum: Diseases giving rise to Morbid Renal Excretion.

WEDNESDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Hutchison: Diseases of Children.

THURSDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Thompson: Diseases of the Nervous System.

FRIDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. L. Smith: Diseases of the Heart.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's 1.30 P.M.), Children, Gt. Ormond-street (9 A.M.) St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2. P.M.).

TUESDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (21st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2 30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (22nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M.), Aural, (2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (24th).—Royal Free (9 A.M), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospital operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

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Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1912, which was completed with the issue of June 29th, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1912 are now ready. Bound in cloth, gilt lettered, price 16*s.* carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 14th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 8	29·75	W.	0·14	115	70	54	55	58	Cloudy
,, 9	29·82	S.W.	0·19	111	66	53	54	57	Fine
,, 10	29·80	S.W.	0·03	99	63	53	54	56	Raining
,, 11	30·06	N.W.	0·36	106	65	49	54	56	Overcast
,, 12	29·92	S.E.	0·02	99	63	49	51	56	Overcast
,, 13	29·75	N.E.	...	101	63	49	51	55	Cloudy
,, 14	29·70	N.W.	...	111	66	47	51	54	Overcast

The following journals, magazines, &c., have been received.—American Journal of Medical Sciences, British Journal of Children's Diseases, Tuberculosis, Royal London Ophthalmic Hospital Reports, Surgical Clinics, Mercy Hospital, Chicago, St. Paul Medical Journal, Report of the National Association for Supplying Female Medical Aid to the Women of India, Detroit Medical Journal, Hospital Assistant (India), Archives de Médecine et de Pharmacie Militaires, Clinique Ophthalmologique, Archives of Pediatrics, Revue de Chirurgie, Revue de Médecine, Archives of the Middlesex Hospital.

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